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Compiled and edited by the
**BATTERY COUNCIL INTERNATIONAL**
Research and Statistics Department

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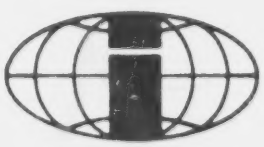
# 1984

# BATTERY COUNCIL INTERNATIONAL STATISTICS ANNUAL



111 East Wacker Drive Chicago, Illinois 60601

## The 1984 Statistics Annual

This publication, prepared under the direction of the Battery Council International Product Information Committee, is a culmination of pertinent statistics on the automotive battery industry.

The **1984 Annual** is the third consecutive book devoted entirely to battery industry statistics and this year presents additional information we feel worthy of special mention. Production and inventory data for both original equipment and replacement batteries have been included in the first section of this year's book. With these statistics, a more comprehensive review of manufacturers' 1983 performance is made possible.

Four major sections of information comprise this book. The first section mainly consists of BCI-generated battery statistics. The remaining sections address the international battery market as well as the automobile and lead industries. Together, these four areas of information will provide you with the background necessary to better understand industry trends.

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# 1983-THE YEAR IN REVIEW

## Battery Shipments

- Automotive battery unit sales rose to 69.0 million in 1983, posting a 6.8 percent increase over 1982 and a 11.8 percent increase over 1980. Manufacturer 1983 shipments registered the greatest real increase since 1977, climbing 4.4 million units.

- Over 56.1 million batteries were shipped for replacement purposes in 1983 representing 81.3 percent of the total automotive battery market. Replacement sales grew 3.5 percent in 1983 and have grown 12 percent since 1980.

- Quarterly replacement statistics reveal 1983's fourth quarter as having the strongest performance in history. Nearly 19 million replacement batteries were shipped in the final quarter of 1983. This increase in shipments registers a 16.7 percent jump over last year's sales for the same period. Quarterly trends also indicate that replacement shipments for the first quarter were weak, and fell from 13 million in 1982 to 10.5 million in 1983.

- Original equipment batteries showed considerable growth in 1983. Sales were up 28.6 percent over 1982; manufacturers shipped 10.8 million O.E. batteries. The original equipment segment of the market increased its share from 13 percent in 1982 to 15.7 percent in 1983.

- Exports of 12 volt and 6 volt automotive batteries increased slightly in 1983 to 2.1 million units. The export share of total battery sales dropped however from 3.2 percent in 1982 to 3.0 percent in 1983.

# Production and Inventory

- Replacement production increased 5.8 percent in 1983, rising to 56.4 million batteries. Month-ending inventories declined in 1983. The average replacement month-ending inventory for the last quarter of 1983 dropped to 7 million batteries. For the year, average monthly inventories in 1983 registered 7.5 million batteries compared to 7.7 million in 1982.

- Original equipment battery production increased 2.49 million units in 1983, with 12.1 million batteries manufactured for original equipment. This jump in production constitutes a 25.9 percent increase. Production exceeded 1 million units in 8 months of 1983 compared to 1 month of 1982. Average O.E. inventories fell from 520 thousand units in 1982 to 435 thousand in 1983.

# End-Use Applications

- Replacement battery shipments by product category displayed small shifts in 1983. Replacement 12 volt Passenger Car sales dropped slightly in terms of total replacement shipments. This category comprised 82.1 percent of total replacement sales in 1982 and slipped to 80.9 percent in 1983. Actual shipments however for 12 volt Passenger applications rose by more than 872 thousand units.

- Heavy Duty Commercial sales rose to 7.4 percent of total replacement shipments in 1983. Shipments of 12 volt batteries were responsible for the increase in the Commercial category. Twelve volt batteries jumped 377 thousand units and posted an 18.9 percent increase compared to last year's performance.

- Marine replacement shipments were stronger in 1983, reaching almost 1.8 million units. The 1983 Marine share of total replacement sales was 3.2 percent, up from 2.6 percent in 1982.

- Original equipment shipments by end-use application also exhibited slight shifts. Statistics reveal a real increase in 12 volt Passenger Car sales of 2.2 million units. This category's share of total sales remained fairly stable however accounting for 88.5 percent of the O.E. market in 1983 and 88.2 percent in 1982.

- Golf Car and General Utility original equipment sales were up in 1983. Golf Car sales captured 1.4 percent of 1983 O.E. shipments as compared to .8 percent in 1982 and rose 82.6 thousand units. General Utility batteries represented 3.8 percent of the original equipment business in 1982 and rose to 4.4 percent in 1983. Batteries shipped for this application experienced a real increase of 154.3 thousand units.

# Channels of Distribution

- Replacement battery sales to the various channels of distribution followed established trends in 1983. Battery Specialists, Department Stores and Parts Distributors received over 68 percent of the 1983 replacement shipments. Some 36.7 million batteries were shipped to these three channels.

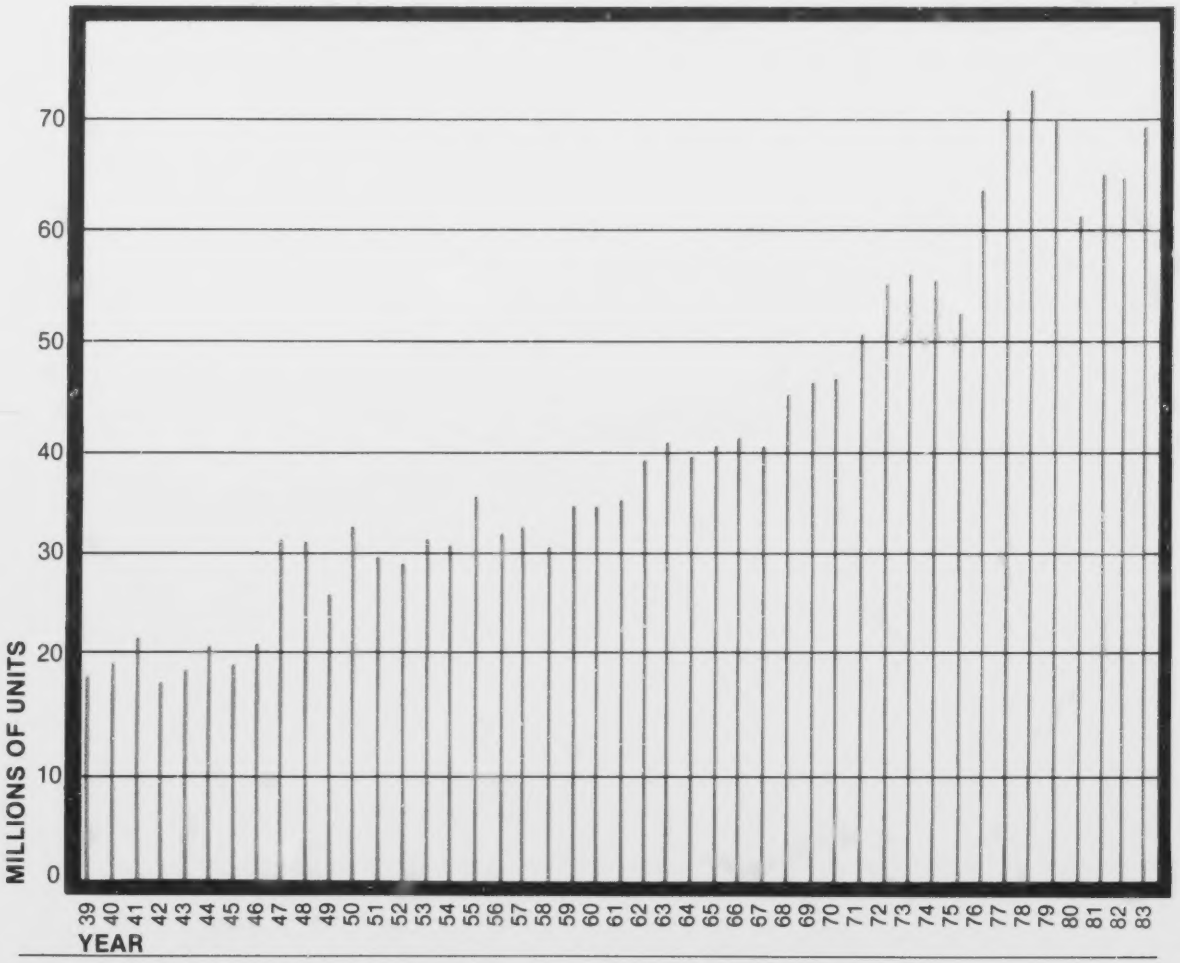
- Minor fluctuations in channel battery percentage shares included: a .9 percent drop in Gas/Oil; a 2.7 percent decrease in Department Stores; a 1.3 percent increase in Auto Chains and a 2.2 percent increase in the Battery Specialist share.

- Replacement batteries shipped under private brand labels continued to dominate the channels of distribution in 1983. Parts Distributors and the government were the only channels receiving a greater number of batteries under manufacturer labels.

# U.S. TOTAL SHIPMENTS* OF S.L.I. BATTERIES

## MILLIONS OF UNITS

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **1939** | 17.4 | **1948** | 31.0 | **1957** | 33.4 | **1966** | 41.6 | **1975** | 52.9 |
| **1940** | 19.3 | **1949** | 26.2 | **1958** | 30.6 | **1967** | 40.2 | **1976** | 64.1 |
| **1941** | 21.4 | **1950** | 32.9 | **1959** | 34.4 | **1968** | 45.0 | **1977** | 70.7 |
| **1942** | 16.5 | **1951** | 29.7 | **1960** | 34.4 | **1969** | 46.4 | **1978** | 73.2 |
| **1943** | 18.1 | **1952** | 28.4 | **1961** | 35.2 | **1970** | 46.9 | **1979** | 69.3 |
| **1944** | 20.4 | **1953** | 31.3 | **1962** | 39.0 | **1971** | 50.6 | **1980** | 61.7 |
| **1945** | 19.0 | **1954** | 30.8 | **1963** | 41.0 | **1972** | 55.5 | **1981** | 65.5 |
| **1946** | 21.0 | **1955** | 35.4 | **1964** | 39.1 | **1973** | 57.1 | **1982** | 64.6 |
| **1947** | 31.2 | **1956** | 32.3 | **1965** | 40.8 | **1974** | 55.6 | **1983** | 69.0 |

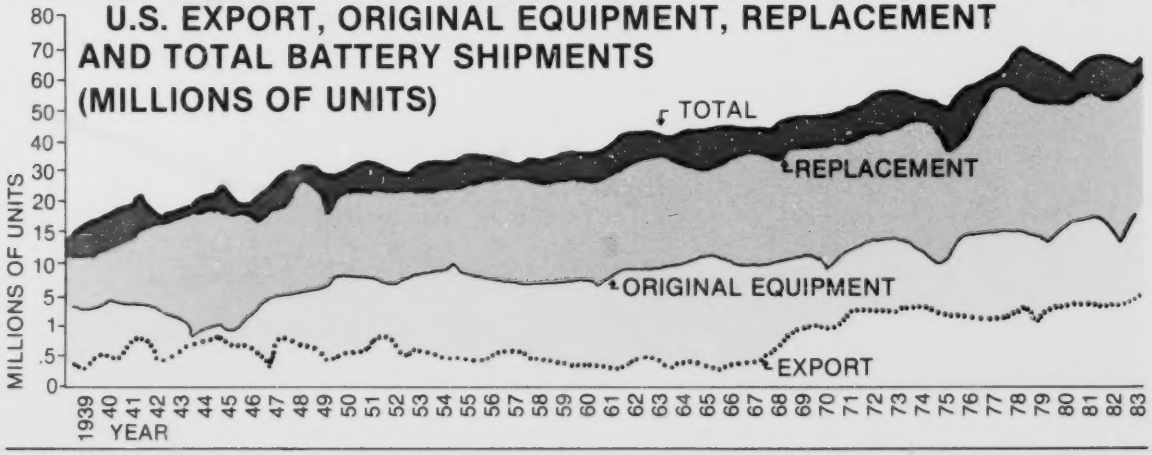



Source: BCI, United State Dept. of Commerce - Bureau of Census, Report EM546, December 1983

*Shipments represent sum of rounded replacement, original equipment, and export shipments.

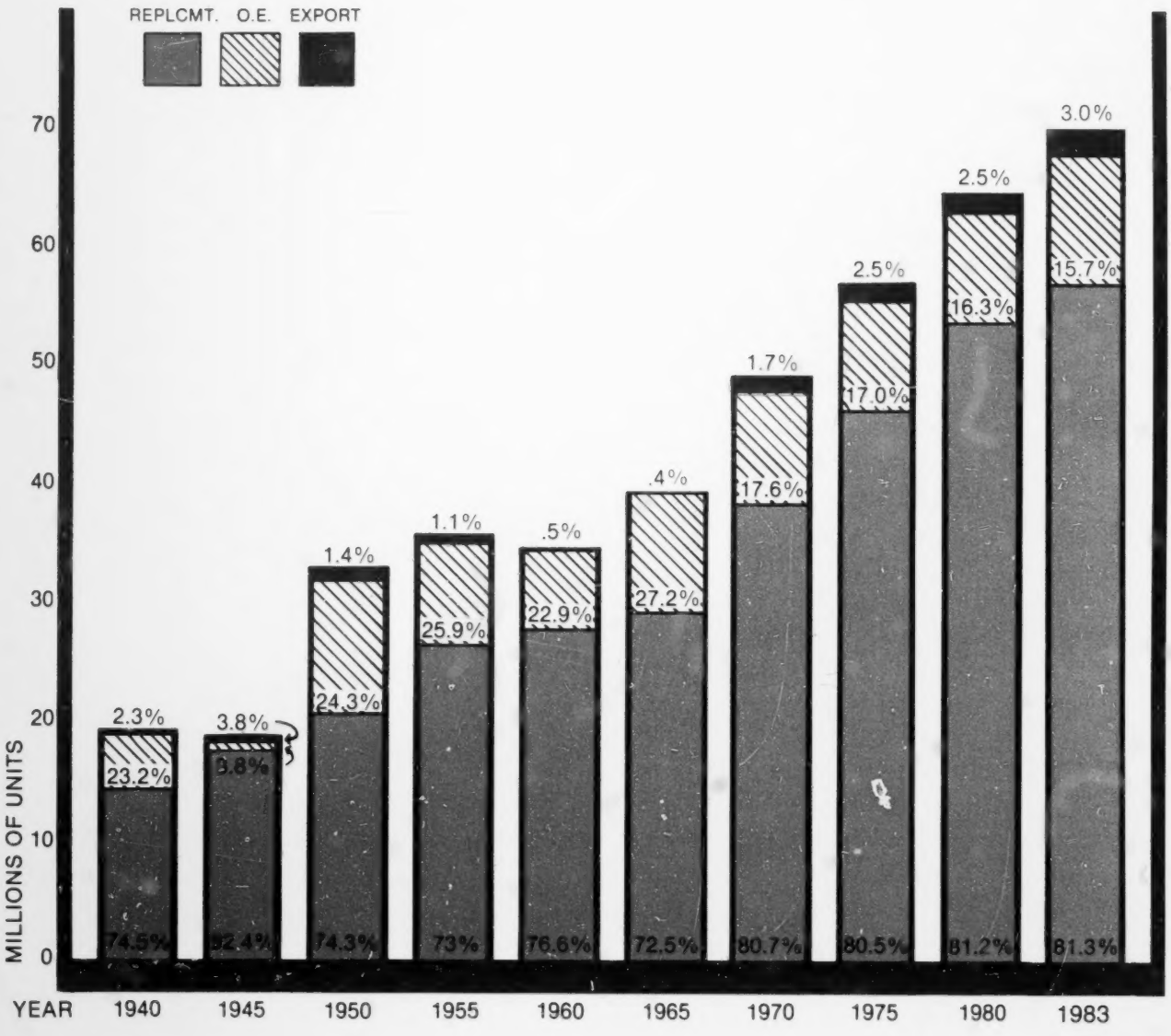
# BREAKDOWN OF U.S. BATTERY SHIPMENTS (1939-83)

| YEAR | REPLACEMENT | ORIGINAL EQUIPMENT | EXPORT 12V, 6V | YEAR | REPLACEMENT | ORIGINAL EQUIPMENT | EXPORT 12V, 6V |
|---|---|---|---|---|---|---|---|
| | MILLIONS OF UNITS | | | 1961 | 28.3 | 6.7 | .2 |
| 1939 | 13.4 | 3.6 | .4 | 1962 | 30.5 | 8.2 | .3 |
| 1940 | 14.3 | 4.5 | .5 | 1963 | 31.7 | 9.1 | .2 |
| 1941 | 15.9 | 4.8 | .7 | 1964 | 29.6 | 9.3 | .2 |
| 1942 | 15.2 | 1.0 | .3 | 1965 | 29.5 | 11.1 | .2 |
| 1943 | 17.0 | .7 | .4 | 1966 | 31.1 | 10.3 | .2 |
| 1944 | 19.1 | .7 | .6 | 1967 | 31.0 | 9.0 | .2 |
| 1945 | 17.6 | .7 | .7 | 1968 | 33.8 | 10.7 | .5 |
| 1946 | 17.5 | 3.1 | .4 | 1969 | 35.5 | 10.1 | .8 |
| 1947 | 25.8 | 4.8 | .6 | 1970 | 37.9 | 8.2 | .8 |
| 1948 | 25.1 | 5.3 | .6 | 1971 | 39.1 | 10.6 | .9 |
| 1949 | 19.4 | 6.3 | .5 | 1972 | 43.2 | 11.3 | 1.0 |
| 1950 | 24.4 | 8.0 | .5 | 1973 | 43.5 | 12.6 | 1.0 |
| 1951 | 22.2 | 6.8 | .7 | 1974 | 44.4 | 10.1 | 1.1 |
| 1952 | 22.5 | 5.5 | .4 | 1975 | 42.6 | 9.0 | 1.3 |
| 1953 | 23.6 | 7.3 | .4 | 1976 | 49.2 | 13.4 | 1.5 |
| 1954 | 23.8 | 6.6 | .4 | 1977 | 54.6 | 14.7 | 1.4 |
| 1955 | 25.8 | 9.2 | .4 | 1978 | 56.4 | 15.2 | 1.6 |
| 1956 | 25.0 | 6.9 | .4 | 1979 | 53.7 | 14.4 | 1.2 |
| 1957 | 25.9 | 7.2 | .3 | 1980 | 50.1 | 10.0 | 1.6 |
| 1958 | 25.3 | 5.1 | .2 | 1981 | 53.6 | 10.0 | 1.9 |
| 1959 | 27.5 | 6.7 | .2 | 1982 | 54.2 | 8.4 | 2.0 |
| 1960 | 26.3 | 7.9 | .2 | 1983 | 56.1 | 10.8 | 2.1 |


U.S. EXPORT, ORIGINAL EQUIPMENT, REPLACEMENT AND TOTAL BATTERY SHIPMENTS (MILLIONS OF UNITS)
TOTAL
REPLACEMENT
ORIGINAL EQUIPMENT
EXPORT
MILLIONS OF UNITS
80 70 60 50 40 30 20 15 10 5 1 .5 0
1939 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83
YEAR

Sources: BCI, United States Dept. of Commerce - Bureau of Census, Report EM546, December 1983
Shipment figures rounded.

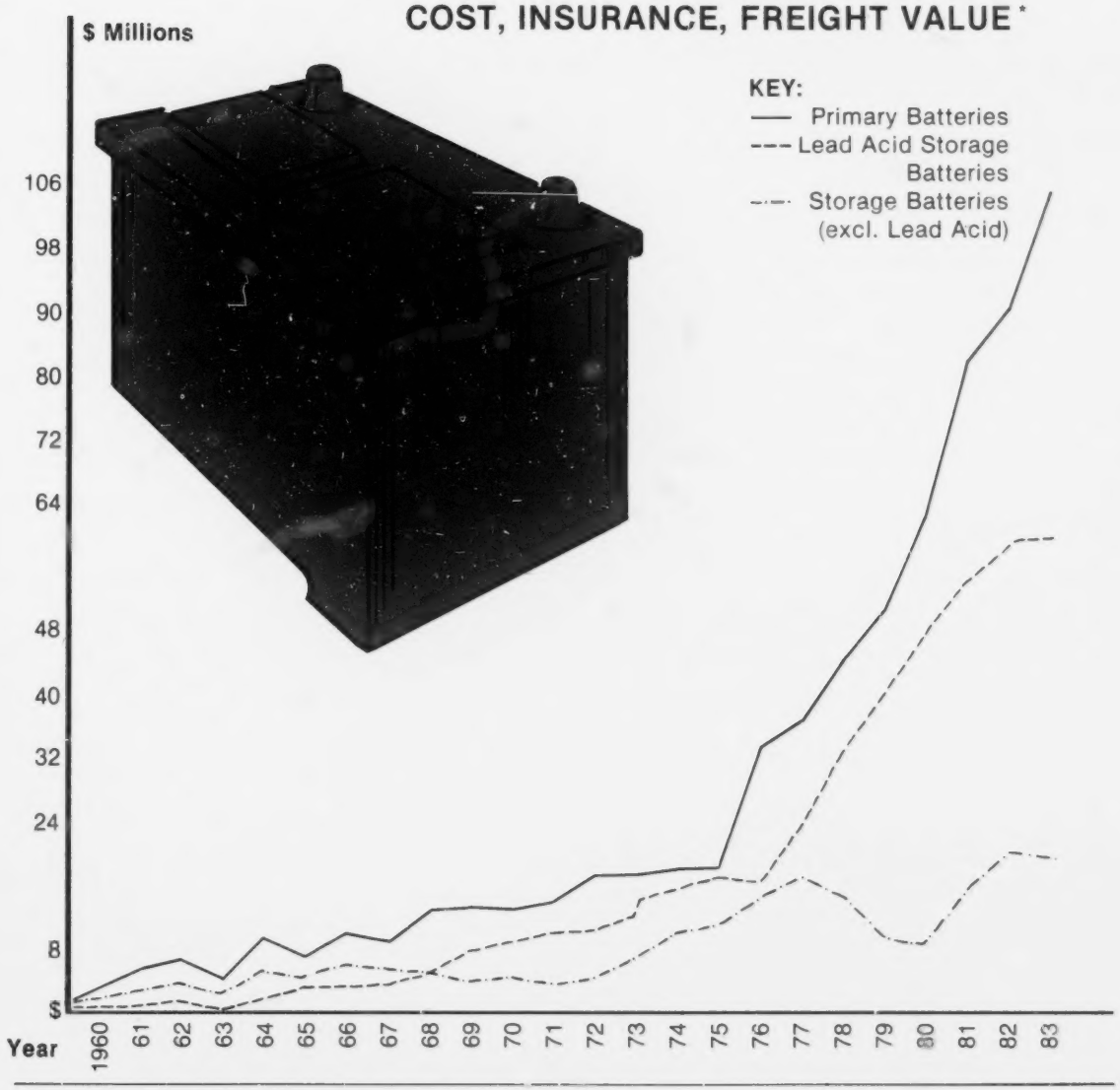
# SHARES OF TOTAL U.S. BATTERY SHIPMENTS
# REPLACEMENT, ORIGINAL EQUIPMENT, EXPORT




Sources: BCI, United States Dept. of Commerce - Bureau of Census

# U.S. BATTERY IMPORTS

## COST, INSURANCE, FREIGHT VALUE*

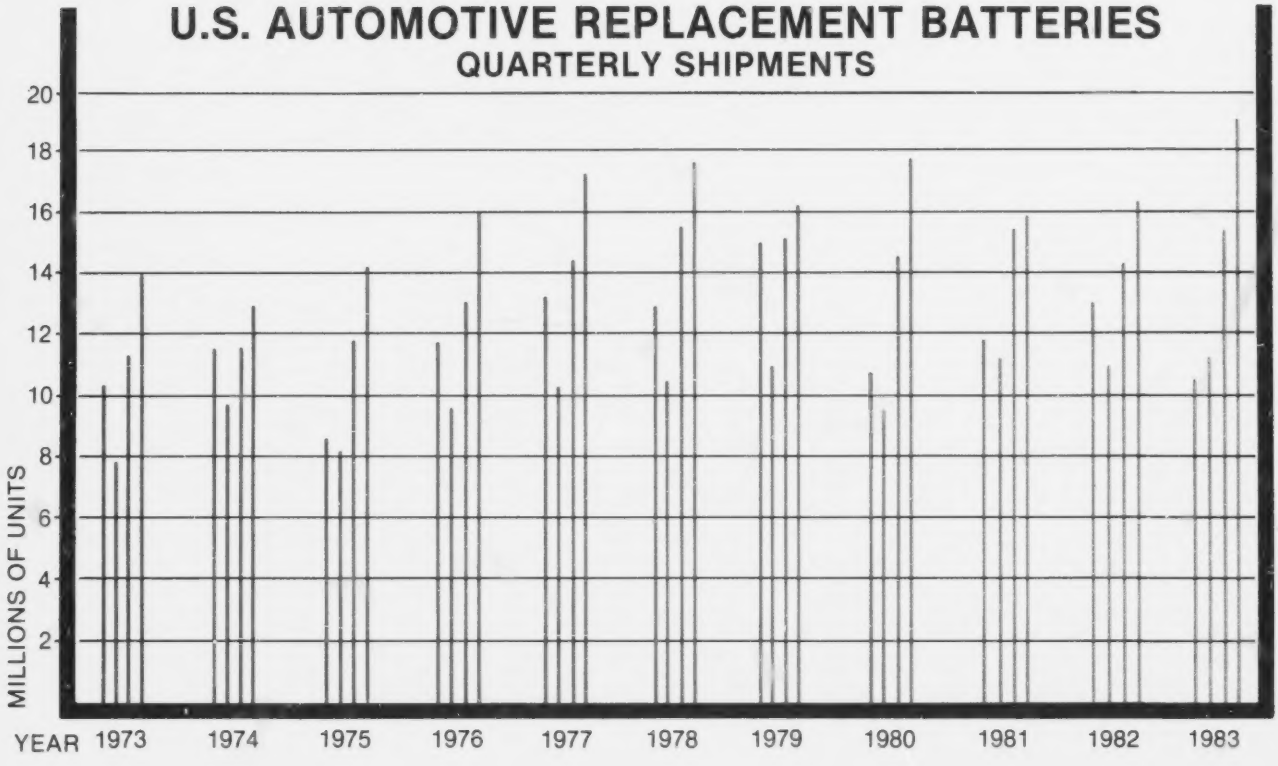



Source: United States Department of Commerce
Bureau of the Census
FT 135, U.S. General Imports and Imports for Consumption, Schedule A.

* Cost, Insurance Freight Value represents the value of imports at the first port of entry in the U.S. CIF values are based on the purchase price and include all freight, insurance, and other charges (excl. U.S. import duties) incurred in bringing the merchandise from the country of exportation to the first port of entry in the U.S.

$-Current value of dollar for each year; not constant dollars.

# U.S. AUTOMOTIVE REPLACEMENT BATTERIES
## QUARTERLY SHIPMENTS



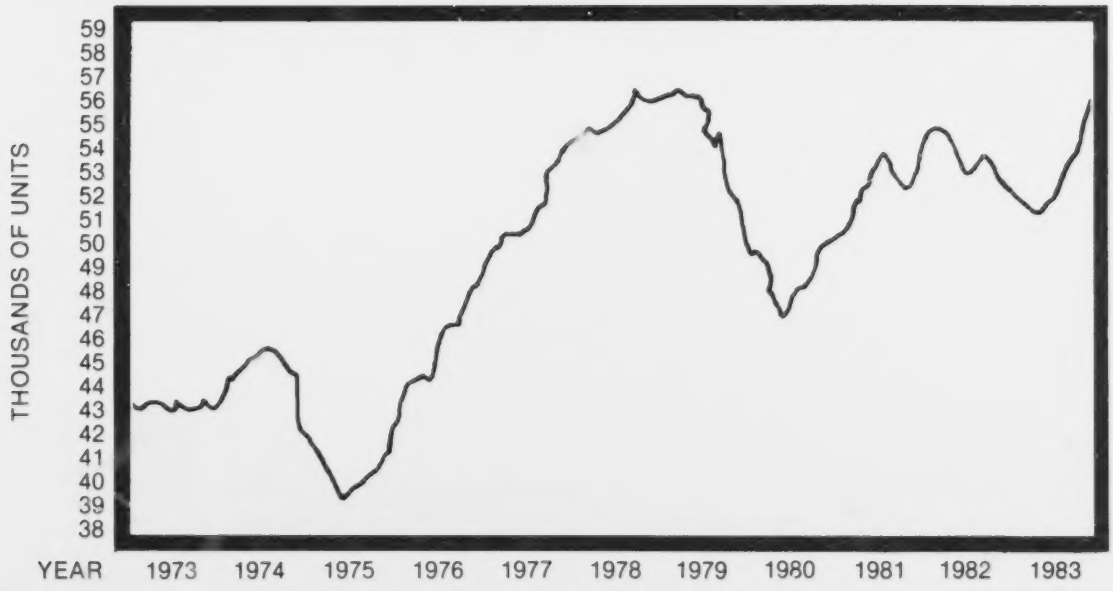

| | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MILLIONS OF UNITS | | | | | | | | | | |
| **1st QTR** | 10.2 | 11.3 | 8.6 | 11.2 | 13.1 | 12.9 | 13.7 | 10.3 | 11.7 | 13.0 | 10.5 |
| **2nd QTR** | 7.9 | 9.2 | 8.1 | 9.4 | 10.0 | 10.5 | 10.6 | 8.8 | 10.6 | 10.8 | 11.3 |
| **3rd QTR** | 11.6 | 11.3 | 11.8 | 12.7 | 14.3 | 15.1 | 13.7 | 13.8 | 15.4 | 14.2 | 15.4 |
| **4th QTR** | 13.8 | 12.6 | 14.1 | 15.9 | 17.2 | 17.9 | 15.7 | 17.2 | 15.9 | 16.2 | 18.9 |
| **YEARLY TOTAL** | 43.5 | 44.4 | 42.6 | 49.2 | 54.6 | 56.4 | 53.7 | 50.1 | 53.6 | 54.2 | 56.1 |

Source: BCI

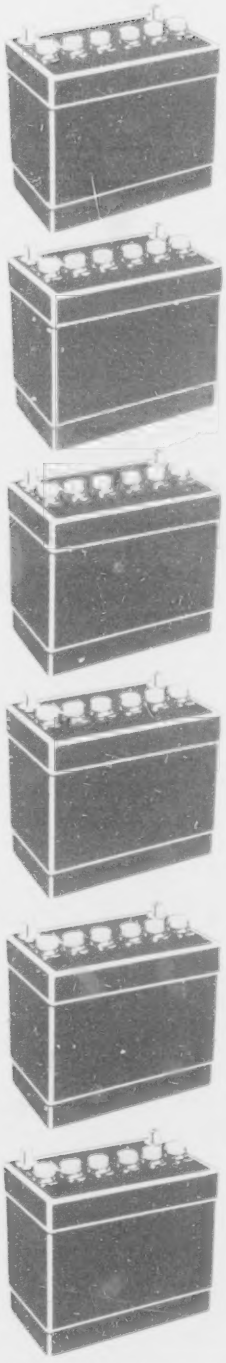
# U.S. SHIPMENTS OF AUTOMOTIVE REPLACEMENT BATTERIES — 12 MONTH MOVING TOTALS

**Thousands of Units**

| MONTH / YEAR | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| JAN | 43,642.8 | 43,855.9 | 42,882.9 | 43,771.8 | 49,818.6 | 54,128.9 | 57,043.0 | 52,240.6 | 51,024.9 | 53,674.7 | 53,025.0 |
| FEB | 43,096.9 | 44,355.1 | 41,985.4 | 44,698.8 | 50,495.2 | 54,318.8 | 57,066.1 | 51,207.2 | 51,352.1 | 54,395.7 | 51,826.6 |
| MAR | 43,108.6 | 44,587.8 | 41,675.2 | 45,260.0 | 51,121.4 | 54,347.1 | 57,158.8 | 50,335.9 | 51,486.4 | 54,903.4 | 51,717.8 |
| APR | 43,362.8 | 45,004.5 | 41,536.7 | 45,468.8 | 51,314.3 | 54,450.6 | 57,204.2 | 50,018.0 | 51,932.5 | 55,054.3 | 51,615.5 |
| MAY | 43,436.6 | 45,516.0 | 41,085.5 | 45,658.9 | 51,737.9 | 54,601.5 | 57,107.5 | 49,424.1 | 52,655.4 | 55,150.2 | 51,751.6 |
| JUN | 43,449.4 | 45,952.9 | 40,507.3 | 46,517.6 | 51,726.8 | 54,783.7 | 57,242.3 | 48,642.6 | 53,264.8 | 55,132.1 | 52,143.9 |
| JUL | 43,187.0 | 46,024.6 | 40,621.4 | 46,939.7 | 51,754.2 | 54,936.4 | 57,182.2 | 48,524.0 | 53,776.8 | 54,724.3 | 52,429.2 |
| AUG | 43,220.3 | 46,659.0 | 40,734.6 | 47,407.3 | 52,498.4 | 55,104.3 | 56,961.8 | 48,061.4 | 54,490.5 | 54,196.1 | 52,779.7 |
| SEP | 43,207.4 | 45,657.2 | 41,008.3 | 47,481.6 | 53,294.0 | 55,569.5 | 55,966.8 | 48,665.0 | 54,845.8 | 53,936.6 | 53,333.8 |
| OCT | 43,484.1 | 45,587.1 | 41,242.3 | 47,801.3 | 54,041.2 | 55,951.2 | 55,423.7 | 49,015.1 | 54,798.1 | 53,377.5 | 54,222.1 |
| NOV | 43,718.1 | 44,805.6 | 41,556.1 | 48,579.6 | 54,183.2 | 56,448.9 | 54,917.5 | 49,190.0 | 54,105.7 | 53,946.5 | 55,089.6 |
| DEC | 43,453.0 | 44,408.1 | 42,582.0 | 49,202.9 | 54,600.7 | 56,389.4 | 53,746.3 | 50,063.2 | 53,597.9 | 54,214.5 | 56,104.8 |




Source: BCI



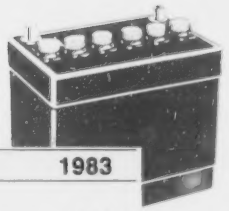
# U.S. BATTERY SHIPMENTS

## REPLACEMENT AND ORIGINAL EQUIPMENT SHARES BY PRODUCT CATEGORY (%'s)

| | 1979 | 1980 | 1981 | 1982 | 1983 |
|---|---|---|---|---|---|
| PRODUCT CATEGORY | %R/%OE | %R/%OE | %R/%OE | %R/%OE | %R/%OE |
| Passenger Car, Light Commercial - 12 V | 78/22 | 83/17 | 83/17 | 86/14 | 82/18 |
| 6 V | 96/4 | 95/5 | 97/3 | 98/2 | 97/3 |
| Heavy Duty Commercial | | | | | |
| 12 V | 73/27 | 75/25 | 79/21 | 82/18 | 83/17 |
| 6 V | 92/8 | 92/8 | 94/6 | 96/4 | 97/3 |
| Special Tractor | 89/11 | 94/6 | 95/5 | 96/4 | 96/4 |
| Marine | 97/3 | 98/2 | 98/2 | 99/1 | 100/0 |
| General Utility | 59/41 | 67/33 | 72/28 | 78/22 | 75/25 |
| Golf Car | 86/14 | 85/15 | 91/9 | 93/7 | 86/14 |

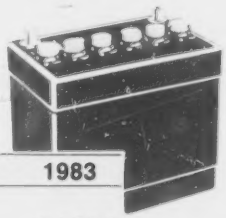
Source: BCI

## UNITED STATES
## REPLACEMENT BATTERY SHIPMENTS:*
## PRODUCT CATEGORY (000's)



| PRODUCT CATEGORY | 1979 | 1980 | 1981 | 1982 | 1983 |
|---|---|---|---|---|---|
| Passenger Car: | | | | | |
| 12 Volt | 43,056.8 | 40,034.3 | 42,790.2 | 44,207.8 | 45,080.0 |
| 6 Volt | 1,528.5 | 1,354.8 | 1,529.0 | 1,460.7 | 1,282.7 |
| Heavy Duty: | | | | | |
| 12 Volt | 1,998.7 | 2,009.2 | 2,211.5 | 2,002.9 | 2,379.6 |
| 6 Volt | 2,500.9 | 2,102.6 | 1,935.0 | 1,719.7 | 1,705.0 |
| Special Tractor | 767.9 | 704.4 | 803.8 | 751.3 | 853.8 |
| Marine | 1,015.3 | 1,039.2 | 1,303.5 | 1,414.4 | 1,770.5 |
| General Utility | 980.3 | 911.8 | 1,110.3 | 1,156.2 | 1,395.7 |
| Golf Car | 940.8 | 931.5 | 932.3 | 866.2 | 915.0 |
| Miscellaneous | 446.6 | 499.8 | 607.2 | 255.7 | 329.7 |
| Total | 53,235.8 | 49,587.6 | 53,222.8 | 53,834.9 | 55,712.0 |

## UNITED STATES
## ORIGINAL EQUIPMENT BATTERY SHIPMENTS:
## PRODUCT CATEGORY (000's)

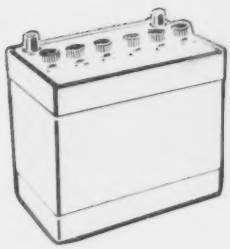


| PRODUCT CATEGORY | 1979 | 1980 | 1981 | 1982 | 1983 |
|---|---|---|---|---|---|
| Passenger Car: | | | | | |
| 12 Volt | 12,427.8 | 8,440.9 | 8,661.2 | 7,384.5 | 9,576.6 |
| 6 Volt | 66.4 | 70.7 | 42.8 | 31.2 | 34.5 |
| Heavy Duty: | | | | | |
| 12 Volt | 751.7 | 655.5 | 591.3 | 451.1 | 499.9 |
| 6 Volt | 201.5 | 174.6 | 133.7 | 80.9 | 44.7 |
| Special Tractor | 93.6 | 48.0 | 42.8 | 28.8 | 32.0 |
| Marine | 26.4 | 21.4 | 25.1 | 9.7 | 4.6 |
| General Utility | 672.9 | 441.9 | 431.5 | 319.5 | 473.8 |
| Golf Car | 149.4 | 165.5 | 94.0 | 67.6 | 150.2 |
| Miscellaneous | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total | 14,389.7 | 10,018.5 | 10,022.4 | 8,373.3 | 10,816.3 |

Source: BCI
Figures rounded
*Replacement figures - unindexed.

# U.S. AUTOMOTIVE REPLACEMENT BATTERY SHIPMENTS TO CHANNELS OF DISTRIBUTION

**Millions of Units**



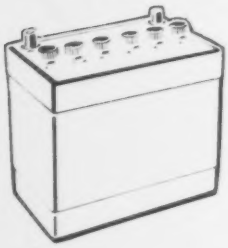
cont.

| CHANNELS | YEAR | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **1970** | **1971** | **1972** | **1973** | **1974** | **1975** | **1976** | **1977** | **1978** | **1979** |
| GAS/OIL | 5.7 | 5.5 | 5.0 | 5.4 | 5.3 | 4.1 | 4.6 | 5.3 | 4.8 | 4.5 |
| TIRES/RUBBER | 2.6 | 2.3 | 2.5 | 2.4 | 2.2 | 2.2 | 2.5 | 2.8 | 3.1 | 2.8 |
| MASS MERCHANDISERS (Department Stores) | 8.2 | 9.4 | 10.1 | 9.7 | 9.4 | 9.0 | 10.1 | 12.9 | 13.0 | 11.6 |
| MASS MERCHANDISERS (Discount Stores) | \| | \| | \| | \| | 1.0 | 1.8 | 2.0 | 2.4 | 2.6 | 2.4 |
| MASS MERCHANDISERS (Auto Chains) | 3.7 | 3.6 | 3.7 | 3.9 | 3.0 | 3.0 | 3.2 | 2.9 | 3.6 | 3.2 |
| MASS MERCHANDISERS (Other) | \| | \| | \| | \| | 1.2 | 1.2 | 1.3 | 1.7 | 1.7 | 1.6 |
| FLEET OPERATIONS | .6 | .6 | .6 | .5 | .3 | .3 | .4 | .4 | .4 | .4 |
| GOVERNMENT | NA | NA | NA | NA | .2 | .3 | .3 | .3 | .3 | .4 |
| VEHICLE/EQUIP. MFG. | 2.2 | 2.1 | 2.1 | 3.8 | 4.9 | 4.1 | 3.9 | 2.3 | 2.8 | 2.9 |
| PARTS DISTRIBUTORS | 9.2 | 9.4 | 7.5 | 7.6 | 10.2 | 7.8 | 10.5 | 11.9 | 11.0 | 11.1 |
| BATTERY SPECIALISTS | 3.4 | 3.8 | 4.5 | 7.2 | 4.6 | 6.1 | 6.9 | 8.6 | 10.4 | 10.2 |
| OTHER | .2 | .3 | .4 | .8 | 1.4 | 1.0 | 1.7 | 1.3 | 1.5 | 1.5 |
| TOTAL | 35.8 | 37.0 | 36.4 | 41.3 | 43.7 | 40.9 | 47.4 | 52.8 | 55.2 | 52.6 |
| *No. Reporting | 24 | 24 | 16 | 23 | 23 | 22 | 22 | 20 | 20 | 20 |

Source: BCI

*Shipments based on the above number of reporting members.

# U.S. AUTOMOTIVE REPLACEMENT BATTERY SHIPMENTS TO CHANNELS OF DISTRIBUTION



**Millions of Units**

YEAR

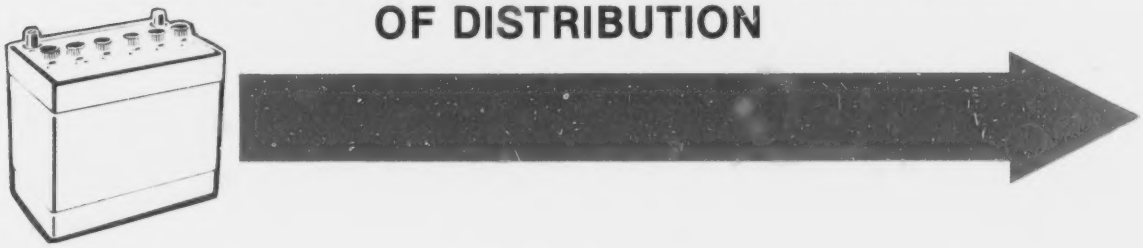
| CHANNELS | 1980 | 1981 | 1982r | 1983 |
|---|---|---|---|---|
| GAS/OIL | 3.3 | 3.1 | 2.7 | 2.2 |
| TIRES/RUBBER | 2.2 | 2.3 | 2.2 | 2.7 |
| MASS MERCHANDISERS (Department Stores) | 10.1 | 11.0 | 11.6 | 10.3 |
| MASS MERCHANDISERS (Discount Stores) | 2.8 | 3.6 | 2.7 | 2.9 |
| MASS MERCHANDISERS (Auto Chains) | 3.0 | 3.1 | 3.6 | 4.4 |
| MASS MERCHANDISERS (Other) | 1.6 | 1.6 | 1.6 | 1.6 |
| FLEET OPERATIONS | .3 | .3 | .3 | .3 |
| GOVERNMENT | .4 | .3 | .3 | .3 |
| VEHICLE/EQUIP. MFG. | 2.2 | 2.4 | 3.1 | 2.4 |
| PARTS DISTRIBUTORS | 9.9 | 9.8 | 8.8 | 9.3 |
| BATTERY SPECIALISTS | 12.7 | 14.0 | 15.7 | 17.1 |
| OTHER | .3 | .6 | .6 | .5 |
| TOTAL | 48.8 | 52.1 | 53.2 | 54.0 |
| *No. Reporting | 20 | 21 | 20 | 20 |

Source: BCI

*Shipments based on the above number of reporting members.

r - 1982 figures revised.

# PERCENTAGES* OF U.S. AUTOMOTIVE REPLACEMENT SHIPMENTS TO CHANNELS OF DISTRIBUTION



| CHANNELS | YEAR | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1965 | 1970 | 1975 | 1980 | 1981 | 1982r | 1983 |
| GAS/OIL | 14.3 | 15.9 | 10.0 | 6.8 | 6.0 | 5.1 | 4.0 |
| TIRES/RUBBER | 9.0 | 7.3 | 5.4 | 4.5 | 4.4 | 4.1 | 4.9 |
| MASS MERCHANDISERS (Department Stores) | 19.1 | 22.9 | 22.0 | 20.7 | 21.1 | 21.9 | 19.2 |
| MASS MERCHANDISERS (Discount Stores) | NA | NA | 4.4 | 5.7 | 6.9 | 5.1 | 5.3 |
| MASS MERCHANDISERS (Auto Chains) | 9.2 | 10.3 | 7.3 | 6.1 | 6.0 | 6.8 | 8.1 |
| MASS MERCHANDISERS (Other) | NA | NA | 2.9 | 3.3 | 3.1 | 3.0 | 2.9 |
| FLEET OPERATIONS | 1.5 | 1.7 | .7 | .6 | .6 | .6 | .6 |
| GOVERNMENT | NA | NA | .7 | .8 | .6 | .5 | .6 |
| VEHICLE/EQUIP. MFG. | 5.7 | 6.1 | 10.0 | 4.5 | 4.6 | 5.8 | 4.4 |
| PARTS DISTRIBUTORS | 29.2 | 25.7 | 19.1 | 20.3 | 18.8 | 16.6 | 17.2 |
| BATTERY SPECIALISTS | 8.9 | 9.5 | 14.9 | 26.0 | 26.9 | 29.5 | 31.7 |
| OTHER | 3.1 | .6 | 2.5 | .6 | 1.2 | 1.0 | 1.0 |
| **TOTAL** | 100.0% | 100.0% | 99.9% | 99.9% | 100.2% | 100.0% | 99.9% |
| No. Reporting | 24 | 24 | 22 | 20 | 21 | 20 | 20 |

Source: BCI

*Percentages rounded.

r - 1982 figures revised.

# PRIVATE BRANDS VS. MANUFACTURER'S OWN (%'s)

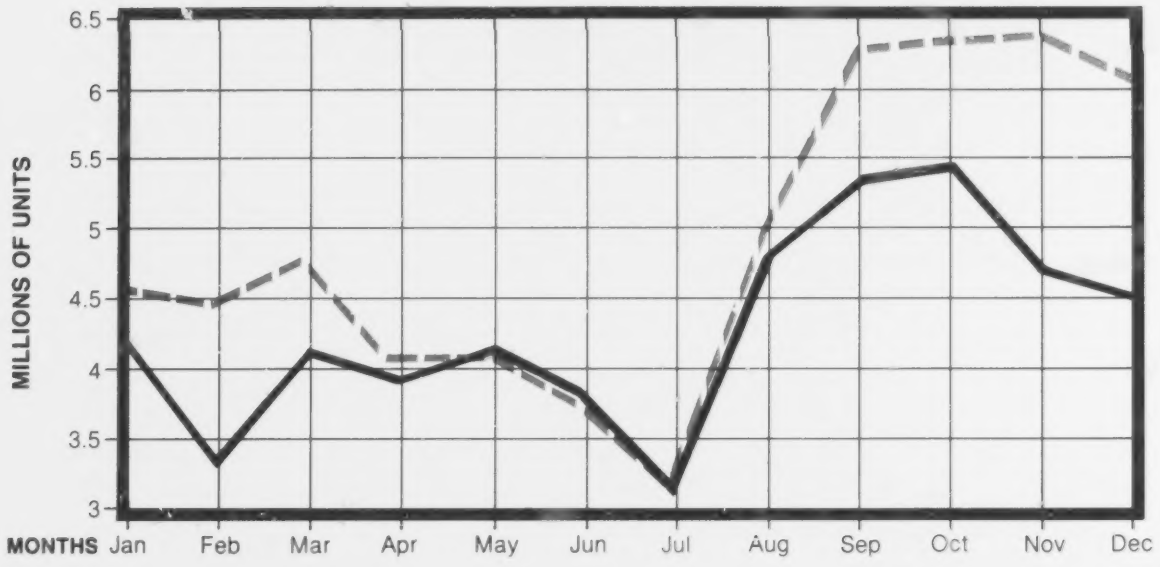
## U.S. BATTERY SHIPMENTS* TO CHANNELS OF DISTRIBUTION

YEAR

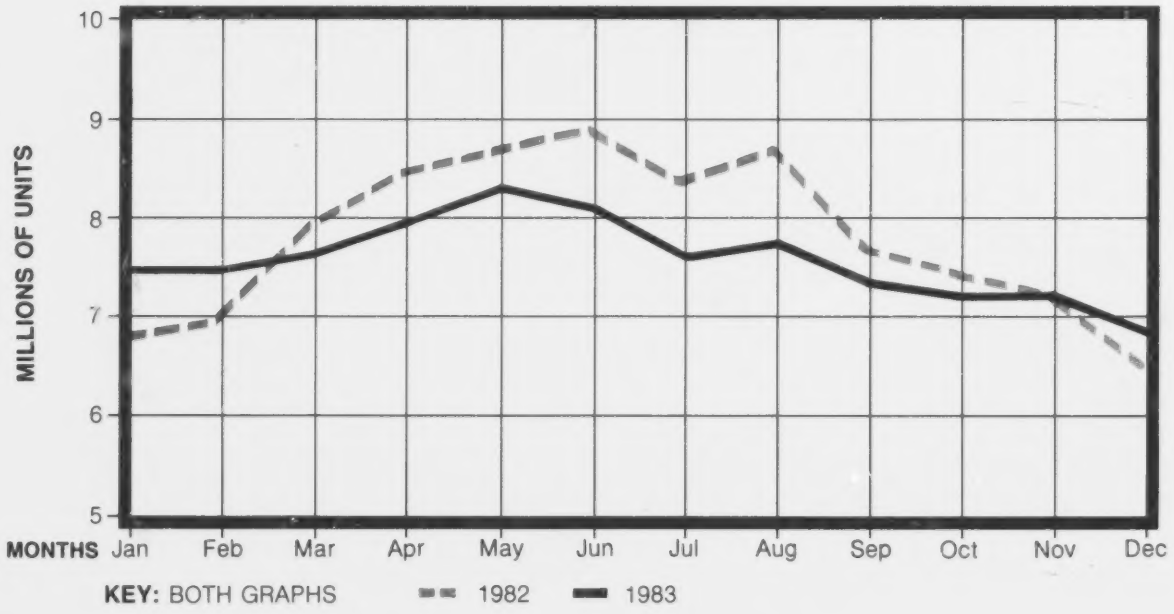
| CHANNELS | 1975 PB/MB | 1976 PB/MB | 1977 PB/MB | 1978 PB/MB | 1979 PB/MB | 1980 PB/MB | 1981 PB/MB | 1982r PB/MB | 1983 PB/MB |
|---|---|---|---|---|---|---|---|---|---|
| GAS/OIL | 91/9 | 88/12 | 87/13 | 87/13 | 86/14 | 82/18 | 87/13 | 88/12 | 90/10 |
| TIRES/RUBBER | 72/28 | 74/26 | 74/26 | 77/23 | 77/23 | 67/33 | 84/16 | 85/15 | 89/11 |
| MASS MERCHANDISERS (Department Stores) | 100/0 | 100/0 | 100/0 | 99/1 | 99/1 | 99/1 | 99/1 | 99/1 | 100/0 |
| MASS MERCHANDISERS (Discount Stores) | 94/6 | 94/6 | 96/4 | 99/1 | 99/1 | 99/1 | 98/2 | 99/1 | 99/1 |
| MASS MERCHANDISERS (Auto Chains) | 97/3 | 98/2 | 97/3 | 96/4 | 98/2 | 94/6 | 96/4 | 95/5 | 90/10 |
| MASS MERCHANDISERS (Other) | 76/24 | 92/8 | 93/7 | 88/12 | 82/18 | 80/20 | 94/6 | 96/4 | 96/4 |
| PARTS DISTRIBUTORS | 32/68 | 31/69 | 36/64 | 40/60 | 42/58 | 40/60 | 43/57 | 43/57 | 44/56 |
| GOVERNMENT | 1/99 | 3/97 | 1/99 | 2/98 | 0/100 | 0/100 | 5/95 | 19/81 | 41/59 |
| FLEET OPERATIONS | 11/89 | 28/72 | 27/73 | 16/84 | 15/85 | 14/86 | 2/98 | 2/98 | 98/2 |
| VEHICLE/EQUIP. MFGS. | 31/69 | 31/69 | 36/64 | 40/60 | 42/58 | 82/18 | 86/14 | 89/11 | 86/14 |
| BATTERY SPECIALISTS | 64/36 | 62/38 | 62/38 | 67/33 | 68/32 | 68/32 | 72/28 | 76/24 | 77/23 |
| OTHER | 30/70 | 62/38 | 92/8 | 94/6 | 84/16 | 32/68 | 39/61 | 47/53 | 64/36 |

Source: BCI
*Percentages rounded.
r - 1982 figures revised.

## REPLACEMENT BATTERY PRODUCTION
## 1982-1983




## REPLACEMENT BATTERY INVENTORIES
## 1982-1983



# U.S. AUTOMOTIVE REPLACEMENT BATTERY PRODUCTION

## Millions of Units

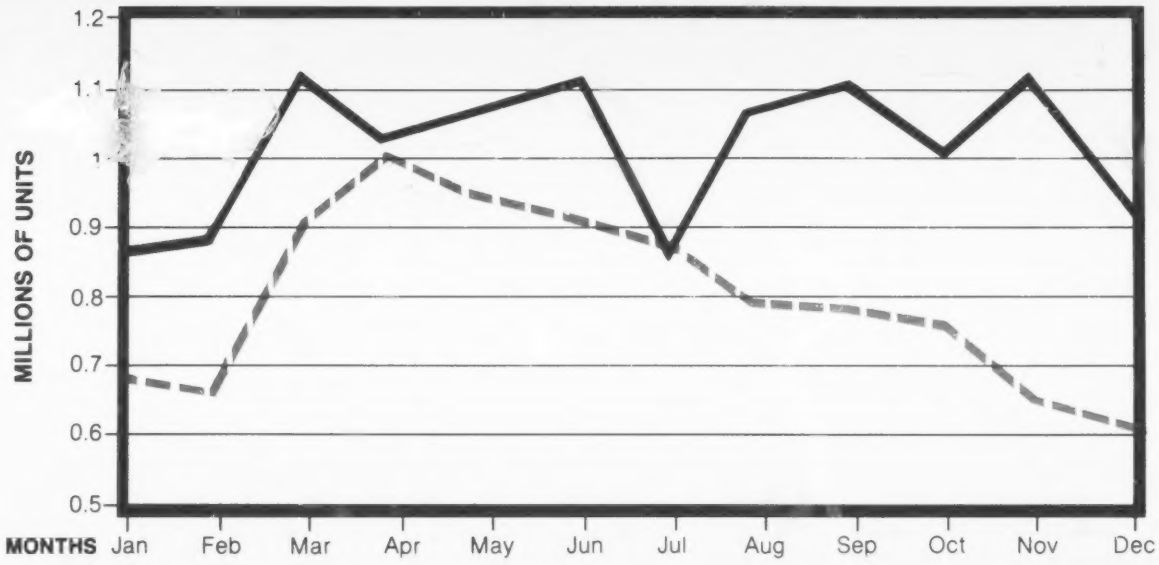
| | 1982 | 1983 |
|---|---|---|
| January | 4.54 | 4.18 |
| February | 4.41 | 3.33 |
| March | 4.65 | 4.09 |
| April | 4.06 | 3.89 |
| May | 4.07 | 4.14 |
| June | 3.76 | 3.91 |
| July | 3.24 | 3.25 |
| August | 4.77 | 4.99 |
| September | 5.27 | 6.19 |
| October | 5.35 | 6.24 |
| November | 4.72 | 6.26 |
| December | 4.51 | 5.96 |

# U.S. AUTOMOTIVE REPLACEMENT BATTERY INVENTORIES

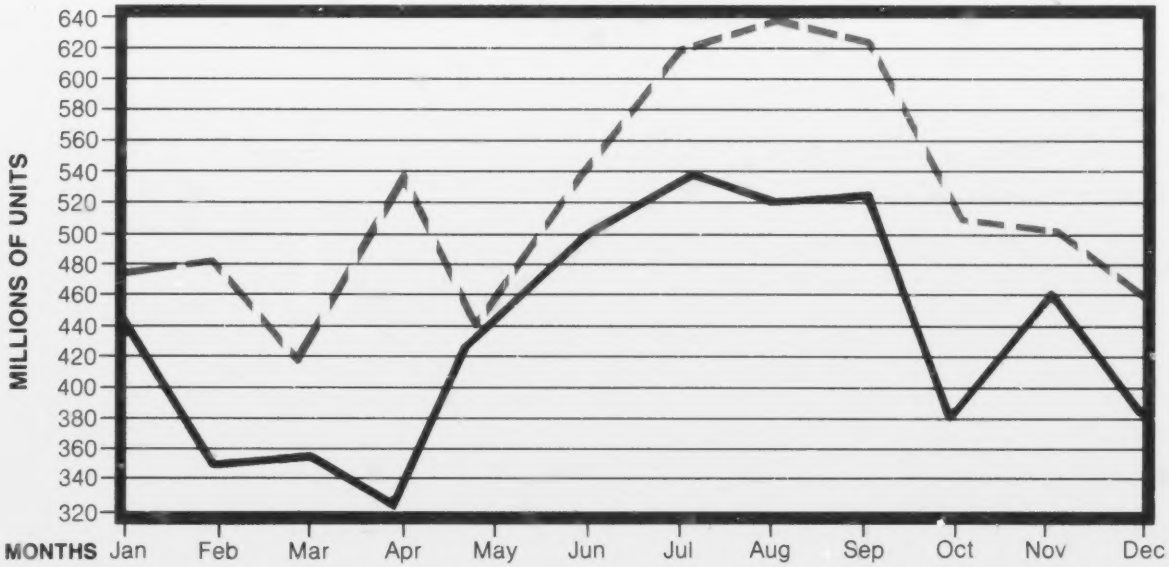
## Millions of Units

| | 1982 | 1983 |
|---|---|---|
| January | 6.77 | 7.43 |
| February | 6.91 | 7.44 |
| March | 7.81 | 7.53 |
| April | 8.34 | 7.82 |
| May | 8.79 | 8.20 |
| June | 8.93 | 8.06 |
| July | 8.35 | 7.61 |
| August | 8.75 | 7.69 |
| September | 7.68 | 7.34 |
| October | 7.38 | 7.09 |
| November | 7.14 | 7.17 |
| December | 6.50 | 6.83 |

## ORIGINAL EQUIPMENT BATTERY PRODUCTION 1982-1983




## ORIGINAL EQUIPMENT BATTERY INVENTORIES 1982-1983




**KEY:** BOTH GRAPHS -- 1982 — 1983

# U.S. AUTOMOTIVE ORIGINAL EQUIPMENT BATTERY PRODUCTION

## Millions of Units

| | 1982 | 1983 |
|---|---|---|
| January | .67 | .86 |
| February | .66 | .88 |
| March | .92 | 1.11 |
| April | 1.01 | 1.04 |
| May | .96 | 1.07 |
| June | .91 | 1.11 |
| July | .87 | .86 |
| August | .80 | 1.05 |
| September | .79 | 1.10 |
| October | .76 | 1.00 |
| November | .66 | 1.11 |
| December | .60 | .91 |

# U.S. AUTOMOTIVE ORIGINAL EQUIPMENT BATTERY INVENTORIES

## Millions of Units

| | 1982 | 1983 |
|---|---|---|
| January | .47 | .44 |
| February | .48 | .35 |
| March | .41 | .35 |
| April | .53 | .33 |
| May | .45 | .44 |
| June | .53 | .50 |
| July | .62 | .55 |
| August | .64 | .52 |
| September | .62 | .52 |
| October | .51 | .37 |
| November | .50 | .47 |
| December | .46 | .38 |

## QUARTERLY PRODUCTION OF AUSTRALIAN S.L.I. BATTERIES (000's)

| | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982r | 1983 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1ST QTR. | 527.4 | 545.2 | 546.1 | 582.0 | 623.2 | 731.6 | 721.0 | 635.4 | 609.7 | 624.4 | 597.7 |
| 2ND QTR. | 684.7 | 681.1 | 732.2 | 819.9 | 808.6 | 925.0 | 841.9 | 714.8 | 783.2 | 794.6 | 789.8 |
| 3RD QTR. | 720.6 | 765.1 | 736.8 | 773.8 | 799.1 | 911.3 | 934.7 | 716.0 | 711.2 | 628.8 | 751.1 |
| 4TH QTR. | 556.7 | 673.5 | 577.3 | 659.4 | 687.7 | 771.8 | 722.2 | 633.0 | 622.2 | 565.4 | 619.7 |
| YEARLY TOTAL | 2489.4 | 2664.9 | 2592.4 | 2835.1 | 2918.6 | 3339.7 | 3219.8 | 2699.2 | 2726.3 | 2613.2 | 2758.3 |

## AUSTRALIAN S.L.I. BATTERY PRODUCTION (000's) 12 MONTH MOVING TOTALS

| | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982r | 1983 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| JAN | 2373.2 | 2524.2 | 2655.7 | 2569.7 | 2847.6 | 2966.7 | 3326.6 | 3189.6 | 2688.6 | 2735.8 | 2618.0 |
| FEB | 2401.8 | 2552.8 | 2649.8 | 2588.9 | 2847.7 | 3004.5 | 3323.7 | 3181.6 | 2642.1 | 2752.6 | 2593.0 |
| MAR | 2415.1 | 2507.2 | 2665.8 | 2628.3 | 2876.2 | 3027.4 | 3329.5 | 3134.1 | 2673.6 | 2740.9 | 2586.6 |
| APR | 2429.9 | 2493.3 | 2712.3 | 2646.9 | 2861.7 | 3059.3 | 3286.0 | 3116.1 | 2703.6 | 2769.2 | 2555.5 |
| MAY | 2449.8 | 2513.0 | 2675.4 | 2660.1 | 2871.7 | 3082.5 | 3295.4 | 3068.0 | 2703.9 | 2778.3 | 2561.1 |
| JUN | 2439.7 | 2503.6 | 2716.9 | 2716.0 | 2865.1 | 3143.8 | 3246.3 | 3007.0 | 2742.0 | 2752.4 | 2581.8 |
| JUL | 2461.8 | 2516.8 | 2696.2 | 2730.8 | 2859.1 | 3188.5 | 3244.9 | 2985.4 | 2722.5 | 2717.2 | 2595.1 |
| AUG | 2478.3 | 2509.3 | 2688.2 | 2740.8 | 2862.1 | 3233.8 | 3272.7 | 2867.3 | 2750.5 | 2673.7 | 2661.7 |
| SEP | 2467.3 | 2548.1 | 2688.6 | 2753.0 | 2890.7 | 3256.0 | 3269.5 | 2788.4 | 2737.0 | 2670.1 | 2704.1 |
| OCT | 2463.8 | 2629.6 | 2633.7 | 2737.8 | 2851.2 | 3350.5 | 3252.1 | 2773.9 | 2723.8 | 2638.4 | 2716.4 |
| NOV | 2488.4 | 2637.3 | 2585.9 | 2803.3 | 2896.7 | 3356.5 | 3245.1 | 2707.1 | 2714.6 | 2637.5 | 2742.9 |
| DEC | 2489.3 | 2664.9 | 2592.4 | 2835.1 | 2919.0 | 3340.1 | 3219.8 | 2699.2 | 2726.2 | 2613.3 | 2758.4 |

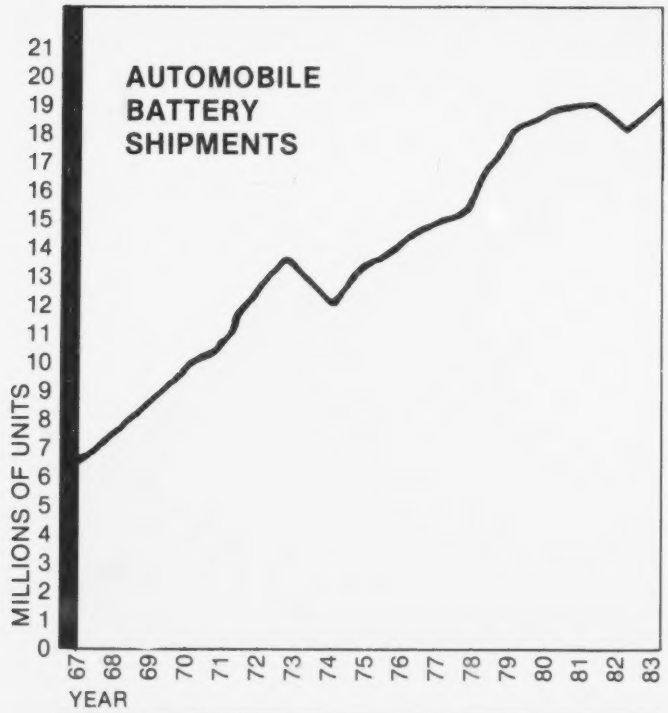
Source: Australian Lead Development Association
r - 1982 figures revised by Australian Bureau of Metal Statistics.

# CANADIAN AUTOMOTIVE REPLACEMENT BATTERY SHIPMENTS (000's) TWELVE MONTH MOVING TOTALS

| | YEAR | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| MONTH | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 |
| JAN | 2195.3 | 2886.4 | 2772.2 | 2435.8 | 2869.1 | 2653.5 | 2712.5 | 2930.4 |
| FEB | 2263.0 | 2830.5 | 2775.1 | 2460.7 | 2830.1 | 2712.3 | 2663.4 | 2895.8 |
| MAR | 2304.4 | 2777.8 | 2804.4 | 2488.8 | 2818.3 | 2724.6 | 2639.5 | 2876.5 |
| APR | 2306.5 | 2757.0 | 2824.0 | 2513.5 | 2786.2 | 2778.1 | 2621.7 | 2821.1 |
| MAY | 2279.6 | 2748.1 | 2848.8 | 2519.8 | 2742.9 | 2810.7 | 2672.2 | 2779.1 |
| JUN | 2272.2 | 2827.0 | 2760.5 | 2636.5 | 2655.5 | 2832.8 | 2697.7 | 2743.0 |
| JUL | 2306.0 | 2854.7 | 2689.1 | 2746.5 | 2564.0 | 2888.2 | 2352.1 | 2774.1 |
| AUG | 2523.5 | 2736.3 | 2672.7 | 2905.0 | 2374.4 | 2882.9 | 2646.6 | 2798.2 |
| SEP | 2657.7 | 2758.4 | 2617.9 | 2879.1 | 2390.8 | 2950.9 | 2918.0 | 2517.1 |
| OCT | 2720.7 | 2703.2 | 2615.5 | 2822.8 | 2545.1 | 2917.5 | 2872.6 | 2535.0 |
| NOV | 2748.0 | 2770.7 | 2496.9 | 2838.6 | 2626.3 | 2846.1 | 2875.8 | 2649.4 |
| DEC | 2864.6 | 2781.6 | 2445.1 | 2836.6 | 2710.1 | 2691.6 | 2994.4 | 2695.9 |

Source: Statistics Canada

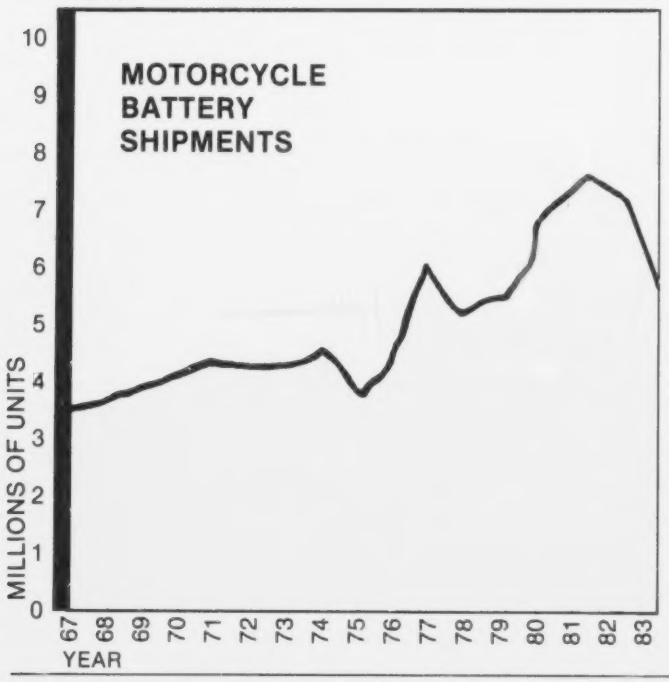
# JAPANESE LEAD-ACID BATTERY SHIPMENTS (1967-1983)




**AUTOMOBILE BATTERY SHIPMENTS**

**MILLIONS OF UNITS**

| | |
|---|---|
| 1967 | 6.4 |
| 1968 | 7.6 |
| 1969 | 9.1 |
| 1970 | 10.0 |
| 1971 | 10.6 |
| 1972 | 12.1 |
| 1973 | 13.6 |
| 1974 | 12.0 |
| 1975 | 13.1 |
| 1976 | 14.6 |
| 1977 | 15.2 |
| 1978 | 16.9 |
| 1979 | 18.2 |
| 1980 | 18.7 |
| 1981 | 19.1 |
| 1982 | 18.2 |
| 1983 | 19.2 |




**MOTORCYCLE BATTERY SHIPMENTS**

**MILLIONS OF UNITS**

| | |
|---|---|
| 1967 | 3.6 |
| 1968 | 3.7 |
| 1969 | 3.9 |
| 1970 | 4.1 |
| 1971 | 4.3 |
| 1972 | 4.3 |
| 1973 | 4.3 |
| 1974 | 4.6 |
| 1975 | 3.9 |
| 1976 | 4.3 |
| 1977 | 5.9 |
| 1978 | 5.2 |
| 1979 | 5.4 |
| 1980 | 6.9 |
| 1981 | 7.5 |
| 1982 | 7.3 |
| 1983 | 5.7 |

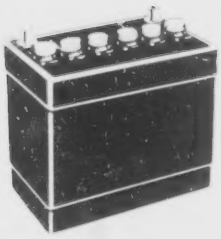
Source: Japan Storage Battery Association, Tokyo, Japan
Figures Rounded.

# AUTOMOBILE-MOTORCYCLE JAPANESE BATTERY SHIPMENTS ORIGINAL EQUIPMENT VS REPLACEMENT*

**Millions of Units**

| Year | Replacement | Original Equipment | Total Number |
|---|---|---|---|
| **AUTOMOBILE BATTERIES** | | | |
| 1968 | 3.2 | 4.4 | 7.6 |
| 1969 | 4.0 | 5.1 | 9.1 |
| 1970 | 4.3 | 5.7 | 10.0 |
| 1971 | 4.7 | 5.9 | 10.6 |
| 1972 | 5.4 | 6.7 | 12.1 |
| 1973 | 6.3 | 7.3 | 13.6 |
| 1974 | 5.3 | 6.7 | 12.0 |
| 1975 | 5.7 | 7.4 | 13.1 |
| 1976 | 6.4 | 8.2 | 14.6 |
| 1977 | 6.4 | 8.8 | 15.2 |
| 1978 | 7.5 | 9.4 | 16.9 |
| 1979 | 7.6 | 10.6 | 18.2 |
| 1980 | 7.1 | 11.6 | 18.7 |
| 1981 | 7.5 | 11.6 | 19.1 |
| 1982 | 7.1 | 11.1 | 18.2 |
| 1983 | 7.6 | 11.6 | 19.2 |
| **MOTORCYCLE BATTERIES** | | | |
| 1968 | 1.3 | 2.4 | 3.7 |
| 1969 | 1.3 | 2.6 | 3.9 |
| 1970 | 1.0 | 3.1 | 4.1 |
| 1971 | 1.1 | 3.2 | 4.3 |
| 1972 | 1.1 | 3.2 | 4.3 |
| 1973 | 1.1 | 3.3 | 4.4 |
| 1974 | .6 | 4.0 | 4.6 |
| 1975 | .7 | 3.2 | 3.9 |
| 1976 | .8 | 3.5 | 4.3 |
| 1977 | .9 | 5.0 | 5.9 |
| 1978 | 1.0 | 4.2 | 5.2 |
| 1979 | 1.1 | 4.3 | 5.4 |
| 1980 | 1.3 | 5.6 | 6.9 |
| 1981 | 1.2 | 6.3 | 7.5 |
| 1982 | 1.4 | 5.9 | 7.3 |
| 1983 | 1.6 | 4.1 | 5.7 |

Source: Japan Storage Battery Association
*Figures rounded.



# GLOBAL WESTERN EUROPEAN STARTER BATTERY MARKET
## 1977 - 1983

**(Thousands of units)**

| | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 |
|---|---|---|---|---|---|---|---|
| Home market sales —OE— from home market producers | 12,689 | 12,527 | 12,267 | 11,299 | 10,410 | 9,337 | 9,649 |
| Home market sales- other clients from home market producers | 22,284 | 22,222 | 22,135 | 20,406 | 19,650 | 20,434 | 21,035 |
| Imports (after deduction of battery manufacturer imports) | 5,081 | 5,379 | 6,495 | 6,335 | 6,820 | 9,502 | 9,993 |
| TOTAL HOME MARKET SALES | 40,054 | 40,128 | 40,897 | 38,040 | 36,880 | 39,273 | 40,677 |
| Battery Production | 42,549 | 42,456 | 43,721 | 40,706 | 39,269 | 41,539 | 42,154 |
| Exports to Western Europe* | 6,440 | 6,580 | 7,550 | 6,905 | 7,272 | 9,822 | 10,658 |
| Other exports* | 1,971 | 2,231 | 1,901 | 2,513 | 2,957 | 2,927 | 2,447 |
| Production for Home Market | 34,138 | 33,645 | 34,270 | 31,288 | 29,040 | 28,790 | 29,049 |
| Imports from Western Europe** | 5,207 | 5,229 | 6,244 | 5,714 | 6,145 | 9,164 | 9,681 |
| Other Imports** | 1,532 | 1,380 | 1,488 | 1,773 | 1,850 | 2,044 | 1,803 |
| TOTAL OFFER FOR HOME MARKET | 40,877 | 40,254 | 42,002 | 38,775 | 37,035 | 39,998 | 40,533 |

Source: EUROBAT-Austria, Belgium, Denmark, Finland, France, Germany, Great Britain, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland

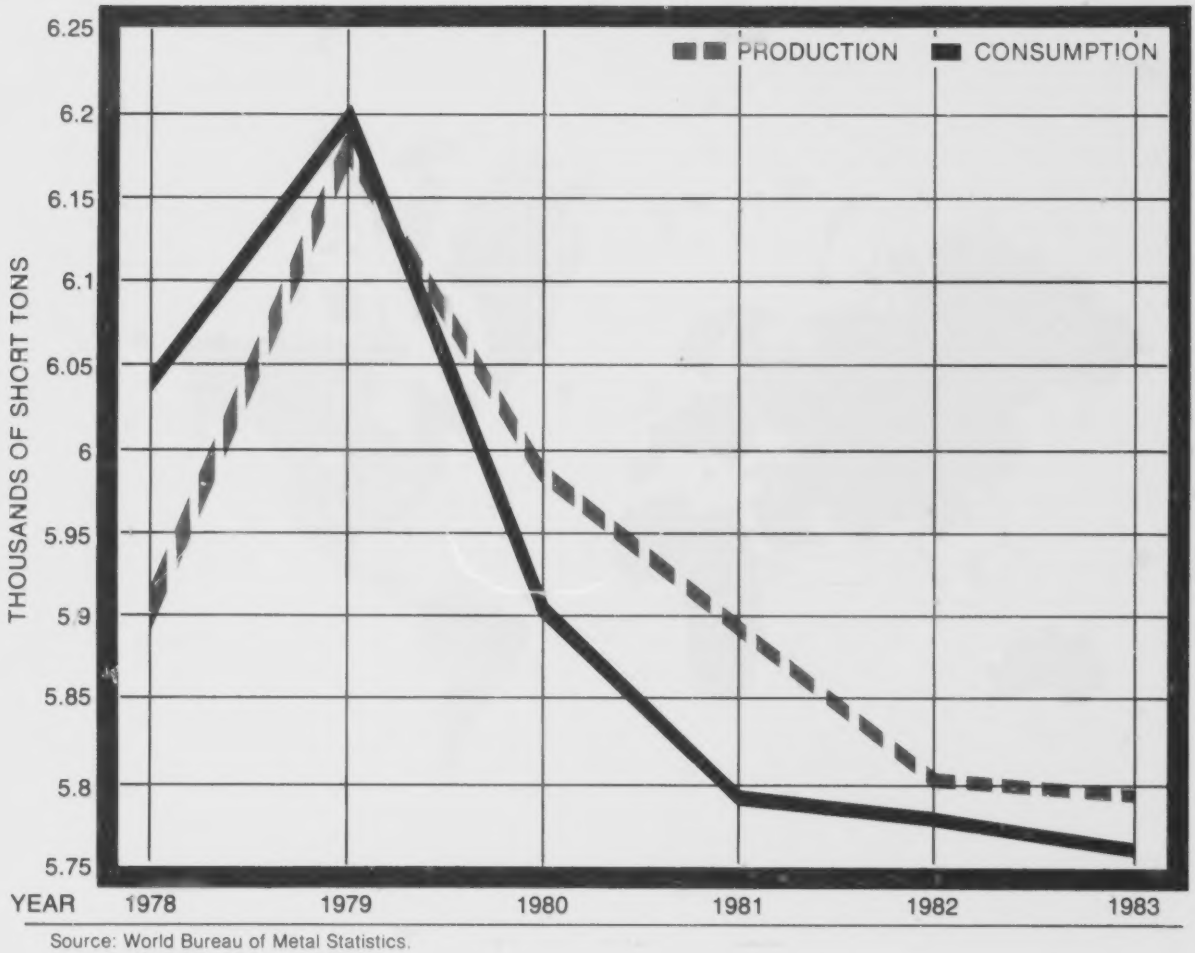
*includes exports to other battery manufacturers.

**includes imports from other battery manufacturers.

# WORLD REFINED PRODUCTION AND CONSUMPTION OF LEAD*

## THOUSANDS OF SHORT TONS

| | PRODUCTION | CONSUMPTION |
|---|---|---|
| 1978 | 5929.2 | 6041.2 |
| 1979 | 6186.2 | 6203.8 |
| 1980 | 5979.1 | 5895.5 |
| 1981 | 5898.7 | 5792.4 |
| 1982 | 5806.7 | 5783.2 |
| 1983 | 5796.5 | 5759.1 |




Source: World Bureau of Metal Statistics.
*Figures Rounded.

# CONSUMPTION OF LEAD IN UNITED STATES BY PRODUCT CATEGORY

## Lead Content-Short Tons

| | 1979 | 1980 | 1981 | 1982* | 1983 |
|---|---|---|---|---|---|
| **Metal Products Total** | **1,159,257** | **932,603** | **1,051,279** | **965,436** | **951,207** |
| Ammunition-shot & bullets | 58,683 | 53,641 | 54,580 | 48,763 | 44,737 |
| Bearing metals total | 10,615 | 8,606 | 7,630 | 6,761 | 4,568 |
| Machinery except electrical | 998 | 1,801 | 1,830 | 1,340 | 683 |
| Electrical & electronic equipment | 87 | 43 | 28 | 106 | 55 |
| Motor vehicles & equipment | 4,204 | 2,471 | 2,716 | 2,227 | 2,255 |
| Other transportation equip. | 5,326 | 4,291 | 3,056 | 3,088 | 1,575 |
| Brass & bronze-billets & ingots | 20,666 | 15,411 | 14,667 | 12,513 | 12,687 |
| Cable covering-power & communication | 18,070 | 14,780 | 13,307 | 16,734 | 11,896 |
| Calking lead-building construction | 8,837 | 6,266 | 6,087 | 4,471 | 3,781 |
| Casting metals total | 25,072 | 20,967 | 20,483 | 27,626 | 19,853 |
| Electrical machinery & equipment | 1,236 | 855 | 1,094 | 884 | 1,646 |
| Motor vehicles & equipment | 2,836 | 1,397 | 1,375 | 724 | 774 |
| Other transportation and equipment | 16,042 | 13,647 | 13,927 | 26,018 | 17,433 |
| Nuclear radiation shielding | 4,958 | 5,068 | 4,087 | (d) | (d) |
| Pipes, traps & other extruded products total | 7,921 | 9,476 | 9,732 | 9,567 | 8,990 |
| Building construction | 6,875 | 8,525 | 9,380 | 9,100 | 8,551 |
| Storage tanks, process vessels, etc. | 1,046 | 951 | 352 | 467 | 439 |
| Sheet lead total | 22,522 | 21,821 | 21,335 | 16,710 | 17,393 |
| Building construction | 15,623 | 14,267 | 13,540 | 11,011 | 10,741 |
| Storage tanks, process vessels, etc. | 6,899 | 7,554 | 1,034 | 138 | 163 |
| Medical radiation shielding | (a) | (a) | 6,761 | 5,561 | 6,489 |
| Solder total | 59,830 | 45,599 | 32,744 | 31,416 | 30,138 |
| Building construction | 10,777 | 4,968 | 6,798 | 7,430 | 7,634 |
| Metal cans & shipping containers | 15,967 | 11,319 | 8,542 | 8,223 | 5,972 |
| Electronic components & accessories | 11,402 | 9,074 | 6,180 | 6,577 | 6,410 |
| Other electrical machinery & equipment | 2,988 | 3,013 | 2,846 | 2,978 | 2,903 |
| Motor vehicles & equipment | 18,696 | 17,255 | 8,378 | 6,208 | 7,219 |
| Storage battery grids, posts, etc. total | 413,977 | 333,162 | 377,205 | 344,562 | 374,585 |
| Storage batteries-SLI automotive | 386,140 | 305,335 | 345,608 | 313,891 | 344,499 |
| Storage batteries - industrial & traction | 27,837 | 27,827 | 31,597 | 30,671 | 30,086 |
| Storage battery oxides total | 483,669 | 378,222 | 471,741 | 431,820 | 410,726 |
| Storage batteries-SLI automotive | 461,739 | 361,816 | 448,699 | 410,150 | 390,115 |
| Storage batteries-industrial & traction | 21,930 | 16,406 | 23,042 | 21,670 | 20,611 |
| Terne metal-motor vehicles & equipment | 5,023 | 3,154 | 4,377 | 3,624 | 5,595 |
| Type metal-printing & allied industries | 11,044 | 9,917 | 8,640 | 3,049 | 175 |
| Other metal products (b) | 13,328 | 11,581 | 8,751 | 7,820 | 6,083 |
| **Pigments Total** | **100,078** | **86,455** | **88,367** | **67,093** | **71,988** |
| Paints | 29,450 | 22,858 | 17,985 | 14,743 | 17,034 |
| Glass & ceramic products | 53,746 | 50,002 | 48,875 | 38,059 | 40,242 |
| Other pigments (c) | 16,882 | 13,595 | 21,507 | 14,291 | 14,712 |
| **Chemicals-Petroleum Refining** | **206,071** | **140,989** | **122,761** | **131,433** | **98,236** |
| **Miscellaneous Uses** | **31,896** | **19,760** | **24,100** | **21,471** | **21,152** |
| **Total** | **1,497,302** | **1,179,807** | **1,286,507** | **1,185,433** | **1,142,583** |

Source: U.S. Bureau of Mines. American Bureau of Metal Statistics, Inc.

(a) Included in storage tanks, process vessels, etc. above. (b) Includes lead consumed in foil, collapsible tubes, annealing, galvanizing, plating and fishing weights. (c) Includes lead contest of leaded zinc oxide, color, and other pigments. (d) Included in 'Other Transportation And Equipment'

NOTE: 1982 Figures have been revised.

# PRIMARY LEAD SMELTED AND REFINED IN THE UNITED STATES

## Short Tons

| | 1979 | 1980 | 1981 | 1982* | 1983 |
|---|---|---|---|---|---|
| Domestic | | | | | |
| Ore (a) | 584,192 | 560,154 | 485,279 | 506,914 | 514,214 |
| Foreign | | | | | |
| Ore and Base Bullion | 50,310 | 43,461 | 60,721 | 57,645 | 53,700 |
| Total (c) | 634,502 | 603,615 | 546,000 | 564,559 | 567,914 |
| Antimonial Lead (b) | 3,750 | 971 | 3,922 | na | na |
| Antimony Content | 299 | 30 | 555 | na | na |

Source: U.S. Bureau of Mines

(a) Includes production resulting from zinc plant residues.

(b) A substantial portion derived from scrap.

(c) USBM considers refined lead to be only soft lead and accounts for antimonial or hard lead separately.

*NOTE: 1982 figures have been revised.

# SECONDARY LEAD RECOVERED IN THE UNITED STATES

## Short Tons

| | 1979 | 1980 | 1981 | 1982* | 1983 |
|---|---|---|---|---|---|
| As Refined Metal | | | | | |
| At Primary Plants | 3,155 | 2,334 | 1,923 | 724 | 850 |
| At Other Plants | 385,102 | 345,090 | 309,099 | 264,355 | 265,050 |
| Sub Total | **388,257** | **347,424** | **311,022** | **265,079** | **265,900** |
| In Antimonial Lead | | | | | |
| At Primary Plants | 590 | 3 | 51 | 37 | 75 |
| At Other Plants | 416,999 | 338,060 | 335,466 | 313,424 | 236,225 |
| Sub Total | **417,589** | **338,063** | **335,517** | **313,461** | **236,300** |
| In Other Alloys | 77,511 | 59,210 | 60,158 | 51,183 | 49,500 |
| TOTAL | **883,357** | **744,697** | **706,697** | **629,723** | **551,700** |
| From New Scrap | 141,785 | 103,828 | 69,527 | 55,120 | 50,200 |
| From Old Scrap | 741,572 | 640,869 | 637,170 | 574,603 | 501,500 |

Source: U.S. Bureau of Mines. American Bureau of Metal Statistics, Inc.

*NOTE: 1982 figures have been revised.

# STOCKS OF LEAD AT UNITED STATES SMELTERS

## Short Tons

| | 1979 | 1980 | 1981 | 1982 | 1983 |
|---|---|---|---|---|---|
| Stocks At End Of Period | | | | | |
| Ore, Matte, Scrap & In Process | 115,695 | 148,871 | 91,473 | 82,246 | 81,700 |
| Base Bullion | 217 | 306 | 392 | 404 | 392 |
| TOTAL | 115,912 | 149,177 | 91,865 | 82,650 | 82,092 |

Source: American Bureau of Metal Statistics.

# CONSUMER AND SECONDARY SMELTER STOCKS OF LEAD IN THE UNITED STATES

## Short Tons

| | 1979 | 1980 | 1981 | 1982 | 1983 |
|---|---|---|---|---|---|
| Refined Soft Lead | 77,386 | 58,049 | 61,637 | 43,543 | 44,721 |
| Antimonial Lead | 35,468 | 40,487 | 40,846 | 36,814 | 31,063 |
| Lead Alloys | 5,226 | 6,322 | 5,016 | 4,377 | 2,937 |
| Copper Base Scrap | 693 | 740 | 608 | 557 | 326 |
| TOTAL | 118,773 | 105,598 | 108,107 | 85,291 | 79,047 |

Source: U.S. Bureau of Mines.

# UNITED STATES SHIPMENTS OF STORAGE BATTERY OXIDES

## Total Weight Shipped, Short Tons

| | 1979 | 1980 | 1981 | 1982 | 1983 |
|---|---|---|---|---|---|
| Storage Battery Oxides Shipped | | | | | |
| JAN | 15,314 | 11,450 | 7,708 | 10,461 | 8,188 |
| FEB | 12,469 | 7,671 | 7,010 | 8,647 | 7,817 |
| MAR | 14,412 | 6,619 | 7,469 | 10,253 | 9,085 |
| APR | 12,484 | 5,935 | 6,522 | 8,186 | 8,862 |
| MAY | 12,512 | 5,500 | 6,589 | 7,976 | 9,289 |
| JUN | 11,007 | 4,418 | 8,744 | 8,683 | 10,237 |
| JUL | 9,518 | 5,736 | 3,406 | 7,289 | 8,861 |
| AUG | 12,431 | 6,871 | 10,797 | 11,053 | 12,970 |
| SEP | 11,165 | 7,783 | 11,544 | 9,080 | 14,499 |
| OCT | 13,718 | 9,364 | 12,318 | 9,320 | 14,105 |
| NOV | 10,423 | 8,267 | 10,916 | 7,979 | 13,062 |
| DEC | 8,828 | 8,527 | 9,289 | 7,856 | 12,318 |
| TOTAL | 144,281 | 88,141 | 102,312 | 106,783 | 129,293 |

Source: American Bureau of Metal Statistics, Inc.

# UNITED STATES IMPORTS AND EXPORTS OF LEAD

## Short Tons

| | 1979 | 1980 | 1981 | 1982 | 1983 |
|---|---|---|---|---|---|
| **Imports** | | | | | |
| Ores And Matte | 44,089 | 48,606 | 64,534 | 39,471 | 52,375 |
| Bullion Or Base Bullion | 1,853 | 718 | 495 | 21 | 58 |
| Pigs And Bars | 211,273 | 90,096 | 112,348 | 100,519 | 144,106 |
| **Total** | **257,215** | **139,420** | **177,377** | **140,011** | **196,539** |
| Reclaimed, Scrap, Dross, Etc. | 7,366 | 8,004 | 5,804 | 9,257r | 7,442 |
| **Exports (includes re-exports)** | | | | | |
| Lead Material (excluding scrap) | 9,957 | 120,534 | 22,279 | 53,790 | 22,385 |
| Scrap | 131,998 | 131,820 | 65,498 | 57,047 | 56,127 |

Source: U.S. Dept. of Commerce - Bureau of Census.
(r) Figures has been revised.

# AUSTRALIAN LEAD PRICES

## F.O.B. Port Pirie Per Metric Tons — Prices Are Expressed In Australian Dollars

| | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 |
|---|---|---|---|---|---|---|
| January | 550.00 | 768.18 | 1,069.05 | 650.00 | 650.00 | 600.00 |
| February | 550.00 | 859.50 | 1,050.00 | 650.00 | 650.00 | 600.00 |
| March | 504.76 | 928.18 | 1,050.00 | 650.00 | 650.00 | 600.00 |
| April | 500.00 | 950.00 | 1,018.42 | 650.00 | 650.00 | 600.00 |
| May | 500.00 | 976.09 | 868.18 | 650.00 | 619.05 | 600.00 |
| June | 500.00 | 1,118.75 | 759.52 | 600.00 | 600.00 | 600.00 |
| July | 500.00 | 1,150.00 | 732.61 | 650.00 | 600.00 | 600.00 |
| August | 517.39 | 1,150.00 | 700.00 | 707.14 | 600.00 | 600.00 |
| September | 568.10 | 1,050.00 | 720.45 | 720.45 | 600.00 | 600.00 |
| October | 668.18 | 1,123.91 | 750.00 | 672.73 | 600.00 | 552.27 |
| November | 700.00 | 1,150.00 | 722.50 | 650.00 | 600.00 | 550.00 |
| December | 700.00 | 1,150.00 | 678.57 | 650.00 | 600.00 | 591.86 |

Source: Yearbook of the American Bureau of Metal Statistics.
(a) As from June 1, 1976 prices apply to both 99.99% and 99.97% purity lead.

# CANADIAN PIG LEAD PRICES

## U.S. Cents Per Pound

| | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 |
|---|---|---|---|---|---|---|
| January | 32.011 | 39.193 | 49.790 | 35.529 | 30.678 | 22.422 |
| February | 31.672 | 41.317 | 49.331 | 30.832 | 29.057 | 21.402 |
| March | 31.310 | 44.685 | 48.352 | 35.711 | 28.392 | 20.998 |
| April | 30.876 | 47.543 | 44.444 | 37.465 | 26.122 | 20.893 |
| May | 30.781 | 47.987 | 36.910 | 37.469 | 26.751 | 20.125 |
| June | 30.531 | 52.640 | 34.486 | 37.976 | 24.837 | 19.476 |
| July | 30.455 | 56.707 | 35.620 | 41.150 | 28.555 | 19.516 |
| August | 30.977 | 56.381 | 40.276 | 43.998 | 26.246 | 19.364 |
| September | 31.552 | 56.863 | 41.357 | 41.955 | 26.320 | 21.635 |
| October | 34.986 | 60.410 | 44.052 | 37.431 | 24.551 | 25.974 |
| November | 35.802 | 55.101 | 42.817 | 35.017 | 22.576 | 26.886 |
| December | 35.600 | 54.769 | 38.657 | 31.664 | 21.262 | 24.461 |

Source: Yearbook of the American Bureau of Metal Statistics.

# LONDON METAL EXCHANGE LEAD PRICES

## U.S. Cents Per Pound

| | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 |
|---|---|---|---|---|---|---|
| January | 30.033 | 44.967 | 50.663 | 31.948 | 29.374 | 21.544 |
| February | 26.423 | 47.791 | 52.926 | 31.236 | 28.010 | 20.608 |
| March | 26.345 | 53.318 | 50.718 | 33.063 | 27.752 | 20.088 |
| April | 25.957 | 52.601 | 43.884 | 34.382 | 26.047 | 20.737 |
| May | 24.652 | 56.158 | 35.493 | 31.584 | 26.049 | 19.630 |
| June | 25.839 | 62.627 | 33.442 | 32.302 | 23.585 | 18.493 |
| July | 26.390 | 57.644 | 36.736 | 35.548 | 25.032 | 18.274 |
| August | 28.964 | 54.962 | 38.652 | 37.343 | 23.695 | 18.038 |
| September | 31.410 | 55.771 | 40.007 | 34.609 | 23.350 | 18.344 |
| October | 37.632 | 59.768 | 39.502 | 32.467 | 22.542 | 19.001 |
| November | 36.474 | 55.492 | 36.893 | 30.183 | 20.960 | 18.344 |
| December | 38.929 | 53.334 | 33.684 | 30.555 | 20.299 | 18.225 |

Source: Yearbook of the American Bureau of Metal Statistics

# UNITED STATES PRODUCER LEAD PRICES

## U.S. Cents Per Pound

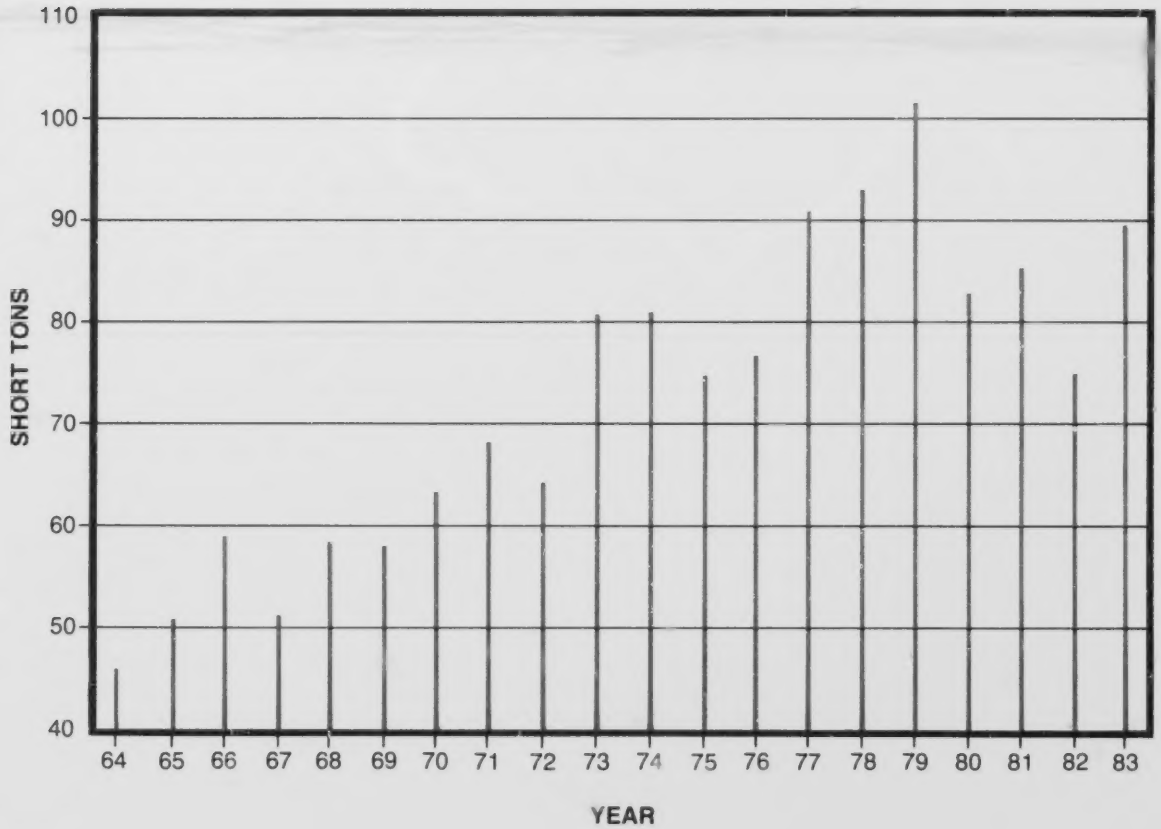
| | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 |
|---|---|---|---|---|---|---|
| January | 33.000 | 40.760 | 49.879 | 33.793 | 29.674 | 22.028 |
| February | 33.000 | 43.632 | 49.559 | 30.422 | 28.703 | 21.124 |
| March | 33.000 | 45.749 | 49.233 | 35.056 | 27.635 | 20.713 |
| April | 33.000 | 48.000 | 44.015 | 37.519 | 26.059 | 21.171 |
| May | 31.000 | 48.805 | 36.002 | 36.413 | 26.091 | 20.224 |
| June | 31.000 | 56.510 | 34.190 | 37.973 | 24.763 | 19.414 |
| July | 31.000 | 58.066 | 35.604 | 40.985 | 27.175 | 19.324 |
| August | 32.168 | 57.913 | 40.962 | 43.890 | 25.818 | 19.458 |
| September | 34.059 | 58.004 | 42.259 | 40.323 | 25.318 | 21.686 |
| October | 36.610 | 61.057 | 45.000 | 37.049 | 26.191 | 25.377 |
| November | 38.000 | 57.262 | 43.806 | 33.875 | 21.608 | 25.151 |
| December | 38.000 | 55.947 | 38.966 | 31.071 | 20.469 | 24.459 |

Source: Yearbook of the American Bureau of Metal Statistics

# LEAD USED IN PRODUCITON OF INDUSTRIAL TYPE BATTERIES*

## SHORT TONS

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **1964** | 46,914 | **1969** | 57,381 | **1974** | 80,856 | **1979** | 101,918 |
| **1965** | 51,226 | **1970** | 63,552 | **1975** | 75,395 | **1980** | 83,635 |
| **1966** | 58,964 | **1971** | 68,060 | **1976** | 77,847 | **1981** | 85,145 |
| **1967** | 52,130 | **1972** | 64,415 | **1977** | 90,853 | **1982** | 75,082 |
| **1968** | 58,447 | **1973** | 80,834 | **1978** | 93,385 | **1983** | 89,077 |




Source: LEAD INDUSTRIES ASSOCIATION, INC.

*Covers all lead used in the manufacture of industrial type batteries, including the lead content of lead alloys and lead oxides, whether purchased or produced in own plant.

# PASSENGER CAR AND TRUCK SHARES OF TOTAL VEHICLE PRODUCTION

## Average for 1980-1983

## WORLD MOTOR VEHICLE PRODUCTION 1980-1983 (Millions of Units)

**1980**

| | | |
|---|---|---|
| Passenger Cars Produced: | 28.4 M | 74% |
| Trucks, Buses Produced: | 10.0 M | 26% |
| TOTAL | 38.4 M | 100% |

**1981**

| | | |
|---|---|---|
| Passenger Cars Produced: | 27.5 M | 74% |
| Trucks, Buses Produced: | 9.7 M | 26% |
| TOTAL | 37.2 M | 100% |

**1982**

| | | |
|---|---|---|
| Passenger Cars Produced: | 26.9 M | 74% |
| Trucks, Buses Produced: | 9.3 M | 26% |
| TOTAL | 36.2 M | 100% |

**1983**

| | | |
|---|---|---|
| Passenger Cars Produced: | 29.7 M | 75% |
| Trucks, Buses Produced: | 10.0 M | 25% |
| TOTAL | 39.7 M | 100% |

Source: Motor Vehicle Manufacturers Association of the United States, complied from various sources.
Figures rounded.

# WORLD MOTOR VEHICLE PRODUCTION

## Millions of Units

| COUNTRY | | 1979 | 1980 | 1981 | 1982 | 1983 |
|---|---|---|---|---|---|---|
| Argentina | TOTAL (M) | .25 | .28 | .17 | .20 | .16 |
| | %Cars | 76% | 79% | 82% | 87% | 81% |
| | %Trucks, Buses | 24% | 21% | 18% | 13% | 19% |
| Australia | TOTAL (M) | .46 | .37 | .39 | .41 | .34 |
| | %Cars | 87% | 86% | 90% | 91% | 92% |
| | %Trucks, Buses | 13% | 14% | 10% | 9% | 8% |
| Austria | TOTAL (M) | .09 | .16 | .02 | .02 | .01 |
| | %Cars | 33% | 44% | 47% | 47% | 50% |
| | %Trucks, Buses | 67% | 56% | 53% | 53% | 50% |
| Belgium | TOTAL (M) | .31 | .02 | .26 | .28 | .29 |
| | %Cars | 87% | 85% | 85% | 87% | 91% |
| | %Trucks, Buses | 13% | 15% | 15% | 13% | 9% |
| Brazil | TOTAL (M) | 1.13 | 1.17 | .78 | .81 | .90 |
| | %Cars | 44% | 52% | 53% | 87% | 64% |
| | %Trucks, Buses | 56% | 48% | 47% | 13% | 36% |
| Canada | TOTAL (M) | 1.63 | 1.37 | 1.32 | 1.21 | 1.52 |
| | %Cars | 63% | 61% | 62% | 66% | 64% |
| | %Trucks, Buses | 37% | 39% | 38% | 34% | 36% |
| Czechoslovakia | TOTAL (M) | .23 | .23 | .23 | .16 | .23 |
| | %Cars | 78% | 78% | 78% | 66% | 75% |
| | %Trucks, Buses | 22% | 22% | 22% | 34% | 25% |
| France | TOTAL (M) | 3.61 | 3.38 | 3.02 | 3.20 | 3.34 |
| | %Cars | 89% | 87% | 86% | 88% | 89% |
| | %Trucks, Buses | 11% | 13% | 14% | 12% | 11% |
| East Germany | TOTAL (M) | .21 | .22 | .22 | .15 | .22 |
| | %Cars | 81% | 82% | 82% | 74% | 82% |
| | %Trucks, Buses | 19% | 18% | 18% | 26% | 18% |
| West Germany | TOTAL (M) | 4.25 | 3.89* | 3.90* | 4.06 | 4.17 |
| | %Cars* | 92% | 90% | 92% | 93% | 93% |
| | %Trucks, Buses | 8% | 10% | 8% | 7% | 7% |
| Hungary | TOTAL (M) | .01 | .02 | .01 | .01 | .01 |
| | %Cars | 0% | 0% | 0% | 0% | 0% |
| | %Trucks, Buses | 100% | 100% | 100% | 100% | 100% |
| India | TOTAL (M) | .10 | .11 | .15 | .15 | .15 |
| | %Cars | 29% | 27% | 27% | 28% | 29% |
| | %Trucks, Buses | 71% | 73% | 73% | 72% | 71% |
| Italy | TOTAL (M) | 1.63 | 1.61 | 1.43 | 1.45 | 1.58 |
| | %Cars | 91% | 90% | 88% | 89% | 89% |
| | %Trucks, Buses | 9% | 10% | 12% | 11% | 11% |

*Includes Micro Buses.

# WORLD MOTOR VEHICLE PRODUCTION Cont.

| COUNTRY | | 1979 | 1980 | 1981 | 1982 | 1983 |
|---|---|---|---|---|---|---|
| Japan | TOTAL (M) | 9.64 | 11.04 | 11.18 | 10.73 | 11.11 |
| | %Cars | 64% | 63% | 62% | 64% | 64% |
| | %Trucks, Buses | 36% | 37% | 38% | 36% | 36% |
| Korea | TOTAL (M) | | .12 | .13 | .16 | .22 |
| | %Cars | Not Available | 41% | 46% | 59% | 55% |
| | %Trucks, Buses | | 59% | 54% | 41% | 45% |
| Mexico | TOTAL (M) | .44 | .49 | .60 | .47 | .29 |
| | %Cars | 63% | 61% | 58% | 64% | 73% |
| | %Trucks, Buses | 37% | 39% | 42% | 36% | 27% |
| Netherlands | TOTAL (M) | .11 | .10 | .09 | .10 | .12 |
| | %Cars | 81% | 80% | 88% | 90% | 90% |
| | %Trucks, Buses | 19% | 20% | 12% | 10% | 10% |
| Poland | TOTAL (M) | .43 | .42 | .29 | .28 | .31 |
| | %Cars | 83% | 83% | 82% | 83% | 83% |
| | %Trucks, Buses | 17% | 17% | 18% | 17% | 17% |
| Portugal | TOTAL (M) | .0003 | .0002 | .0001 | .0001 | |
| | %Cars | 0% | 0% | 0% | 0% | Not Available |
| | %Trucks, Buses | 100% | 100% | 100% | 100% | |
| Romania | TOTAL (M) | .12 | .13 | .13 | .13 | .15 |
| | %Cars | 58% | 61% | 61% | 60% | 64% |
| | %Trucks, Buses | 42% | 39% | 39% | 40% | 36% |
| Spain | TOTAL (M) | 1.12 | 1.18 | .99 | 1.07 | 1.29 |
| | %Cars | 86% | 87% | 86% | 87% | 89% |
| | %Trucks, Buses | 14% | 13% | 14% | 13% | 11% |
| Sweden | TOTAL (M) | .35 | .30 | .31 | .35 | .40 |
| | %Cars | 85% | 80% | 83% | 84% | 87% |
| | %Trucks, Buses | 15% | 20% | 17% | 16% | 13% |
| Switzerland | TOTAL (M) | .001 | .001 | .001 | .0008 | |
| | %Cars | 0% | 0% | 0% | 0% | Not Available |
| | %Trucks, Buses | 100% | 100% | 100% | 100% | |
| United Kingdom | TOTAL (M) | 1.48 | 1.31 | 1.18 | 1.16 | 1.29 |
| | %Cars | 72% | 70% | 80% | 77% | 81% |
| | %Trucks, Buses | 28% | 30% | 20% | 23% | 19% |
| United States | TOTAL (M) | 11.48 | 8.00 | 7.94 | 6.99 | 9.21 |
| | %Cars | 73% | 79% | 78% | 73% | 74% |
| | %Trucks, Buses | 27% | 21% | 22% | 27% | 26% |
| USSR | TOTAL (M) | 2.17 | 2.20 | 2.19 | 2.21 | 2.18 |
| | %Cars | 60% | 51% | 60% | 60% | 61% |
| | %Trucks, Buses | 40% | 49% | 40% | 40% | 39% |
| Yugoslavia | TOTAL (M) | .32 | .28 | .29 | .24 | .25 |
| | %Cars | 90% | 92% | 89% | 88% | 85% |
| | %Trucks, Buses | 10% | 8% | 11% | 12% | 15% |
| TOTAL WORLD | | 41.57M | 38.40M | 37.22M | 36.00M | 39.74M |

Source: Compiled by Motor Vehicle Mfgers. Assoc. of U.S. Inc. from various sources.
Figures rounded.
Note: As far as can be determined, this table refers to vehicles locally manufactured.

# VEHICLES IN USE IN THE U.S.

## Millions of Units

| | |
|---|---|
| *1947 | 33.5 |
| 1948 | 36.6 |
| 1949 | 39.8 |
| 1950 | 43.5 |
| 1951 | 46.6 |
| 1952 | 48.2 |
| 1953 | 50.9 |
| 1954 | 53.2 |
| 1955 | 56.5 |
| 1956 | 59.3 |
| 1957 | 61.2 |
| 1958 | 62.5 |
| 1959 | 65.6 |
| 1960 | 67.9 |
| 1961 | 69.9 |
| 1962 | 72.4 |
| 1963 | 75.4 |
| 1964 | 78.5 |
| 1965 | 82.1 |
| 1966 | 85.6 |
| 1967 | 88.0 |
| 1968 | 91.0 |
| 1969 | 95.1 |
| 1970 | 98.1 |
| 1971 | 101.6 |
| 1972 | 106.2 |
| 1973 | 111.2 |
| 1974 | 115.9 |
| 1975 | 120.1 |
| 1976 | 124.4 |
| 1977 | 128.1 |
| 1978 | 133.5 |
| 1979 | 137.3 |
| 1980 | 139.8 |
| 1981 | 141.9 |
| 1982 | 143.9 |
| 1983 | 147.1 |

Source: R.L. Polk & Company. Further reproduction prohibited.
*As of July 1 each year.
Figures rounded.

# UNITED STATES
# MOTOR VEHICLE REGISTRATIONS (In Millions)

| | 1978 | 1978 | 1980 | 1981 | 1982 | 1983* |
|---|---|---|---|---|---|---|
| ALABAMA | 2.78 | 2.92 | 3.01 | 3.08 | 3.11 | 3.15 |
| ALASKA | .26 | .26 | .27 | .30 | .33 | .35 |
| ARIZONA | 1.66 | 1.85 | 2.00 | 2.20 | 2.32 | 2.41 |
| ARKANSAS | 1.46 | 1.54 | 1.61 | 1.69 | 1.51 | 1.49 |
| CALIFORNIA | 15.58 | 16.99 | 17.62 | 17.53 | 17.82 | 18.51 |
| COLORADO | 2.32 | 2.47 | 2.46 | 2.60 | 2.62 | 2.63 |
| CONNECTICUT | 2.18 | 2.28 | 2.22 | 2.18 | 2.33 | 2.36 |
| DELAWARE | .39 | .40 | .41 | .42 | .43 | .44 |
| D.C. | .24 | .25 | .27 | .28 | .24 | .24 |
| FLORIDA | 6.92 | 7.52 | 7.83 | 8.19 | 8.56 | 9.12 |
| GEORGIA | 3.66 | 3.85 | 3.93 | 3.97 | 4.03 | 4.09 |
| HAWAII | .53 | .57 | .58 | .59 | .59 | .60 |
| IDAHO | .76 | .83 | .89 | .91 | .93 | .94 |
| ILLINOIS | 7.09 | 7.56 | 7.78 | 7.90 | 7.54 | 7.55 |
| INDIANA | 3.74 | 3.96 | 4.01 | 4.06 | 4.05 | 4.04 |
| IOWA | 2.32 | 2.56 | 2.55 | 2.59 | 2.58 | 2.60 |
| KANSAS | 1.93 | 2.07 | 2.11 | 2.14 | 2.19 | 2.23 |
| KENTUCKY | 2.54 | 2.67 | 2.66 | 2.66 | 2.68 | 2.70 |
| LOUISIANA | 2.56 | 2.75 | 2.86 | 2.90 | 2.87 | 2.89 |
| MAINE | .71 | .76 | .77 | .78 | .79 | .82 |
| MARYLAND | 2.70 | 2.84 | 2.88 | 2.93 | 2.97 | 3.01 |
| MASSACHUSETTS | 3.64 | 3.82 | 3.85 | 3.88 | 3.85 | 3.85 |
| MICHIGAN | 6.25 | 6.59 | 6.74 | 6.41 | 6.49 | 6.56 |
| MINNESOTA | 2.91 | 3.18 | 3.26 | 3.34 | 3.45 | 3.50 |
| MISSISSIPPI | 1.52 | 1.51 | 1.61 | 1.61 | 1.62 | 1.64 |
| MISSOURI | 3.16 | 3.34 | 3.38 | 3.44 | 3.51 | 3.54 |
| MONTANA | .83 | .70 | .71 | .77 | .20 | .83 |
| NEBRASKA | 1.21 | 1.28 | 1.31 | 1.26 | 1.26 | 1.27 |
| NEVADA | .59 | .66 | .75 | .72 | .73 | .74 |
| NEW HAMPSHIRE | .65 | .69 | .75 | .82 | .83 | .84 |
| NEW JERSEY | 4.55 | 4.82 | 4.87 | 4.80 | 5.02 | 5.04 |
| NEW MEXICO | .99 | 1.08 | 1.12 | 1.10 | 1.25 | 1.30 |
| NEW YORK | 7.87 | 8.17 | 8.20 | 8.31 | 8.43 | 8.47 |
| NORTH CAROLINA | 4.30 | 4.55 | 4.65 | 4.66 | 4.70 | 4.71 |
| NORTH DAKOTA | .60 | .64 | .66 | .67 | .68 | .70 |
| OHIO | 7.65 | 7.96 | 8.05 | 8.01 | 7.92 | 7.88 |
| OKLAHOMA | 2.44 | 2.72 | 2.71 | 2.75 | 2.92 | 2.97 |
| OREGON | 1.92 | 2.09 | 2.17 | 2.17 | 2.16 | 2.17 |
| PENNSYLVANIA | 6.71 | 6.97 | 7.14 | 7.24 | 6.95 | 6.97 |
| RHODE ISLAND | .65 | .61 | .65 | .62 | .61 | .61 |
| SOUTH CAROLINA | 1.92 | 2.01 | 2.03 | 2.01 | 2.01 | 2.08 |
| SOUTH DAKOTA | .58 | .63 | .64 | .65 | .65 | .67 |
| TENNESSEE | 2.95 | 3.08 | 3.36 | 3.62 | 3.46 | 3.44 |
| TEXAS | 10.15 | 10.29 | 10.79 | 11.46 | 11.73 | 11.97 |
| UTAH | .96 | 1.05 | 1.06 | 1.10 | 1.10 | 1.11 |
| VERMONT | .34 | .37 | .37 | .37 | .37 | .38 |
| VIRGINIA | 3.44 | 3.59 | 3.71 | 3.93 | 3.79 | 3.77 |
| WASHINGTON | 2.96 | 3.26 | 3.37 | 3.48 | 3.47 | 3.35 |
| WEST VIRGINIA | 1.17 | 1.30 | 1.36 | 1.39 | 1.20 | 1.20 |
| WISONSIN | 2.74 | 2.93 | 3.12 | 3.30 | 3.37 | 3.41 |
| WYOMING | .41 | .48 | .49 | .51 | .53 | .54 |

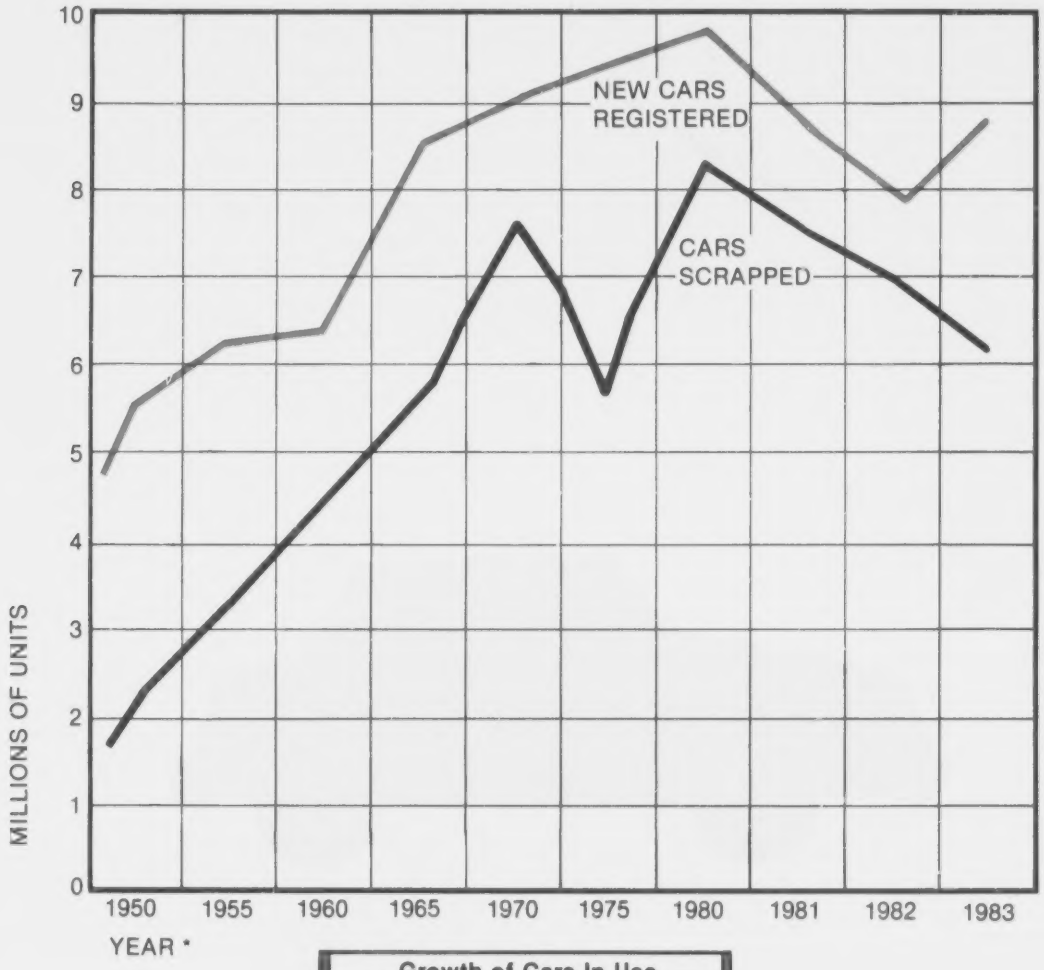
Source: U.S. Federal Highway Administration

Note: 1978 — Auto, Truck, Buses 1979, 1980, 1981, 1982 — Autos, Trucks, Buses, and Motorcycles

*Preliminary.

Registrations include both privately and publicly-owned vehicles.

# PASSENGER CAR GROWTH IN THE UNITED STATES




| Growth of Cars In Use | |
|---|---|
| 1950 | 9.8% |
| 1955 | 6.7% |
| 1960 | 3.1% |
| 1965 | 4.4% |
| 1970 | 2.5% |
| 1975 | 2.8% |
| 1980 | 1.2% |
| 1981 | 1.2% |
| 1982 | 1.0% |
| 1983 | 2.0% |

Source: R.L. Polk & Co. Further reproduction prohibited.
*As of July 1 each year.

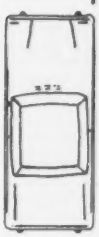
# UNITED STATES — NEW CAR REGISTRATIONS

## Millions of Units

| | | | |
|---|---|---|---|
| 1946 | 2.9 | 1965 | 9.2 |
| 1947 | 3.3 | 1966 | 8.7 |
| 1948 | 4.0 | 1967 | 8.6 |
| 1949 | 5.5 | 1968 | 9.5 |
| 1950 | 6.3 | 1969 | 9.4 |
| 1951 | 4.4 | 1970 | 8.7 |
| 1952 | 4.9 | 1971 | 10.2 |
| 1953 | 5.7 | 1972 | 11.4 |
| 1954 | 6.2 | 1973 | 10.0 |
| 1955 | 6.7 | 1974 | 8.3 |
| 1956 | 5.9 | 1975 | 9.4 |
| 1957 | 5.3 | 1976 | 10.3 |
| 1958 | 5.6 | 1977 | 11.0 |
| 1959 | 6.4 | 1978 | 11.0 |
| 1960 | 6.0 | 1979 | 9.6 |
| 1961 | 6.4 | 1980 | 8.8 |
| 1962 | 7.3 | 1981 | 8.4 |
| 1963 | 7.9 | 1982 | 7.9 |
| 1964 | 8.6 | 1983 | 8.9 |

Source: R.L. Polk & Co. Further reproduction prohibited.
Note: Adjustments for absence of Oklahoma and other states have been made where applicable.
As of July 1 each year.

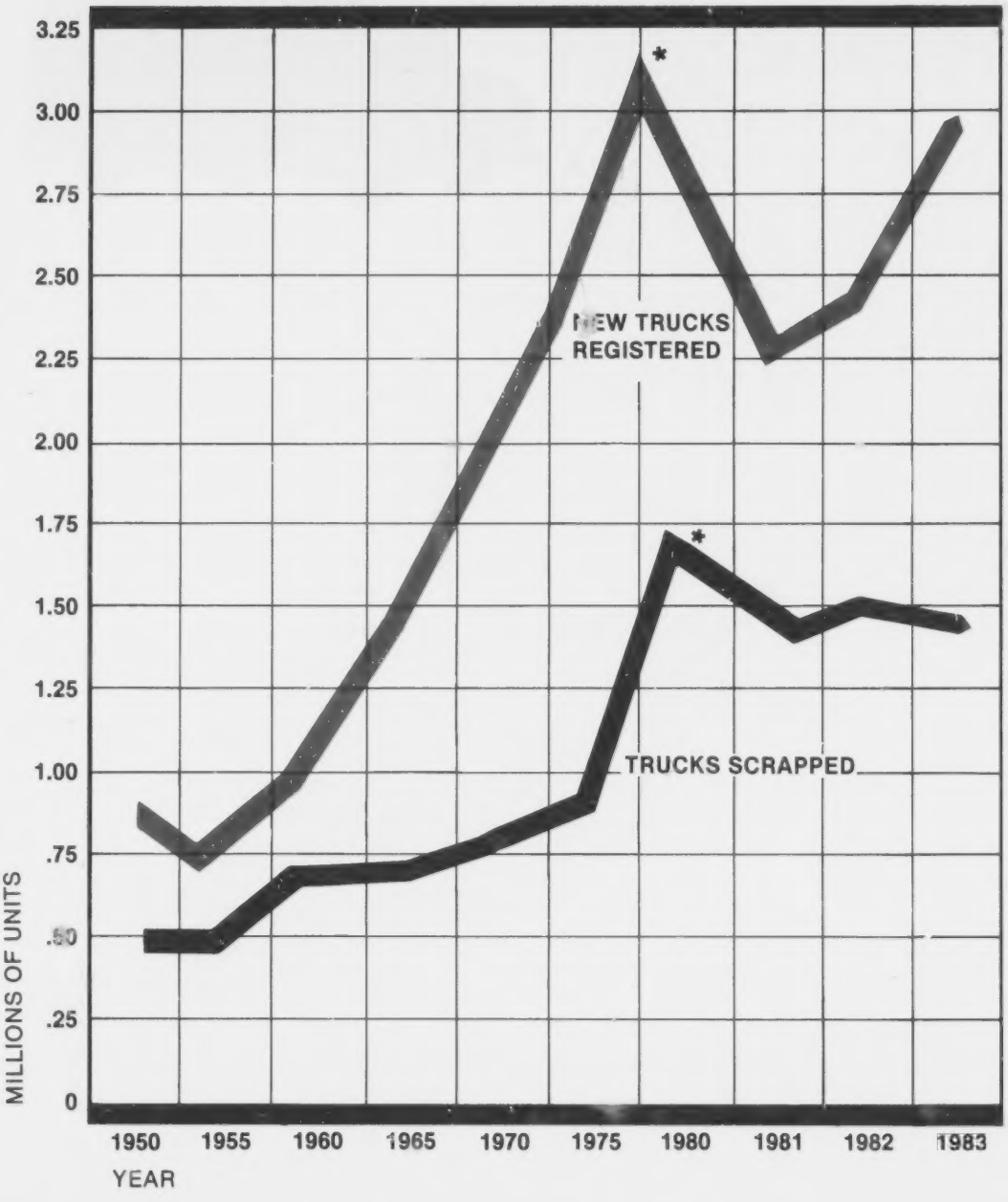
# UNITED STATES
# NEW CAR REGISTRATIONS (000's)



| | 1980 | 1981 | 1982 | 1983 |
|---|---|---|---|---|
| Alabama | 124.1 | 112.1 | 100.7 | 123.4 |
| Alaska | 12.6 | 16.7 | 16.3 | 18.0 |
| Arizona | 98.9 | 89.4 | 75.0 | 83.8 |
| Arkansas | 72.1 | 73.5 | 66.0 | 64.8 |
| California | 902.5 | 846.2 | 806.8 | 922.3 |
| Colorado | 117.8 | 116.0 | 103.7 | 111.2 |
| Connecticut | 133.6 | 127.0 | 121.2 | 143.5 |
| Delaware | 31.8 | 30.9 | 30.1 | 36.0 |
| District of Columbia | 16.8 | 18.0 | 15.8 | 18.5 |
| Florida | 477.8 | 505.8 | 466.0 | 589.9 |
| Georgia | 210.2 | 193.3 | 163.0 | 226.2 |
| Hawaii | 37.1 | 39.2 | 37.1 | 42.8 |
| Idaho | 27.0 | 29.8 | 21.7 | 22.3 |
| Illinois | 494.1 | 454.0 | 450.4 | 510.8 |
| Indiana | 193.8 | 180.6 | 158.9 | 172.3 |
| Iowa | 97.1 | 94.4 | 80.7 | 90.8 |
| Kansas | 90.7 | 81.0 | 75.2 | 80.3 |
| Kentucky | 85.6 | 105.5 | 88.0 | 99.7 |
| Louisiana | 164.4 | 162.6 | 141.7 | 147.9 |
| Maine | 34.1 | 43.6 | 38.2 | 46.7 |
| Maryland | 216.3 | 214.9 | 204.5 | 252.2 |
| Massachusetts | 215.8 | 222.3 | 221.5 | 263.7 |
| Michigan | 450.0 | 445.8 | 374.6 | 485.1 |
| Minnesota | 191.7 | 177.3 | 157.4 | 175.2 |
| Mississippi | 69.6 | 64.1 | 56.8 | 66.7 |
| Missouri | 176.0 | 165.8 | 152.9 | 179.2 |
| Montana | 25.4 | 25.1 | 20.0 | 21.8 |
| Nebraska | 55.1 | 49.7 | 43.6 | 47.1 |
| Nevada | 36.9 | 34.6 | 28.1 | 29.9 |
| New Hampshire | 59.6 | 58.2 | 56.1 | 64.2 |
| New Jersey | 365.4 | 320.0 | 324.2 | 350.1 |
| New Mexico | 43.8 | 43.2 | 40.8 | 41.8 |
| New York | 605.5 | 578.2 | 549.3 | 624.7 |
| North Carolina | 201.2 | 191.6 | 179.4 | 223.5 |
| North Dakota | 23.0 | 23.9 | 20.5 | 21.2 |
| Ohio | 438.6 | 393.9 | 361.6 | 429.1 |
| Oklahoma* | NA | NA | NA | NA |
| Oregon | 101.5 | 92.3 | 72.2 | 82.1 |
| Pennsylvania | 467.9 | 425.1 | 408.2 | 459.3 |
| Rhode Island | 33.7 | 29.9 | 27.9 | 34.7 |
| South Carolina | 108.9 | 98.3 | 87.0 | 103.8 |
| South Dakota | 20.1 | 19.6 | 15.9 | 18.3 |
| Tennessee | 149.2 | 138.0 | 130.9 | 154.7 |
| Texas | 607.8 | 645.4 | 593.6 | 576.9 |
| Utah | 34.9 | 52.6 | 37.8 | 43.5 |
| Vermont | 23.6 | 24.4 | 23.6 | 24.5 |
| Virginia | 205.5 | 207.8 | 190.3 | 228.8 |
| Washington | 140.3 | 124.8 | 101.7 | 112.3 |
| West Virginia | 63.1 | 63.0 | 53.8 | 57.5 |
| Wisconsin | 171.4 | 157.6 | 138.2 | 168.3 |
| Wyoming | 19.4 | 18.3 | 15.4 | 14.0 |
| Federal Government | 18.1 | 18.9 | 10.1 | 19.1 |
| TOTAL | 8,761.4 | 8,444.2 | 7,754.4 | 8,924.5 |

Source: R.L. Polk & Co. Further reproduction prohibited.
Calendar years.
Figures rounded. NA-not available.

# TRUCK GROWTH IN THE UNITED STATES




| Growth of Trucks in Use | |
|---|---|
| 1950 | 6.9% |
| 1955 | 4.1% |
| 1960 | 2.6% |
| 1965 | 5.5% |
| 1970 | 6.6% |
| 1975 | 6.4% |
| 1980 | 4.1% |
| 1981 | 2.3% |
| 1982 | 2.5% |
| 1983 | 3.1% |

Source: R.L. Polk & Co. Further reproduction prohibited.
*Includes window vans transferred from passenger car to truck category.
As of July 1 each year.

# UNITED STATES — NEW TRUCK REGISTRATIONS

## Millions of Units

| | | | |
|---|---|---|---|
| 1946 | .8 | 1965 | 1.6 |
| 1947 | 1.0 | 1966 | 1.6 |
| 1948 | 1.0 | 1967 | 1.6 |
| 1949 | 1.0 | 1968 | 1.9 |
| 1950 | 1.2 | 1969 | 1.9 |
| 1951 | .9 | 1970 | 1.8 |
| 1952 | .9 | 1971 | 2.4 |
| 1953 | .9 | 1972 | 2.9 |
| 1954 | .8 | 1973 | 3.0 |
| 1955 | 1.0 | 1974 | 2.4 |
| 1956 | .9 | 1975 | 2.8 |
| 1957 | .8 | 1976 | 3.3 |
| 1958 | .9 | 1977 | 3.8 |
| 1959 | 1.0 | 1978 | 3.9 |
| 1960 | .9 | 1979 | 3.1 |
| 1961 | 1.0 | 1980 | 2.3 |
| 1962 | 1.2 | 1981 | 2.2 |
| 1963 | 1.3 | 1982 | 2.4 |
| 1964 | 1.4 | 1983 | 3.0 |

Source: R.L. Polk & Co. Further reproduction prohibited.
Note: Adjustments for absence of Oklahoma and other states have been made where applicable.
As of July 1 each year.

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